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FIRE ENGINEERING

A Consolidation of
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JUNE 1, 1927

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FIRE HOSE

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from Coast *to* Coast
have standardized
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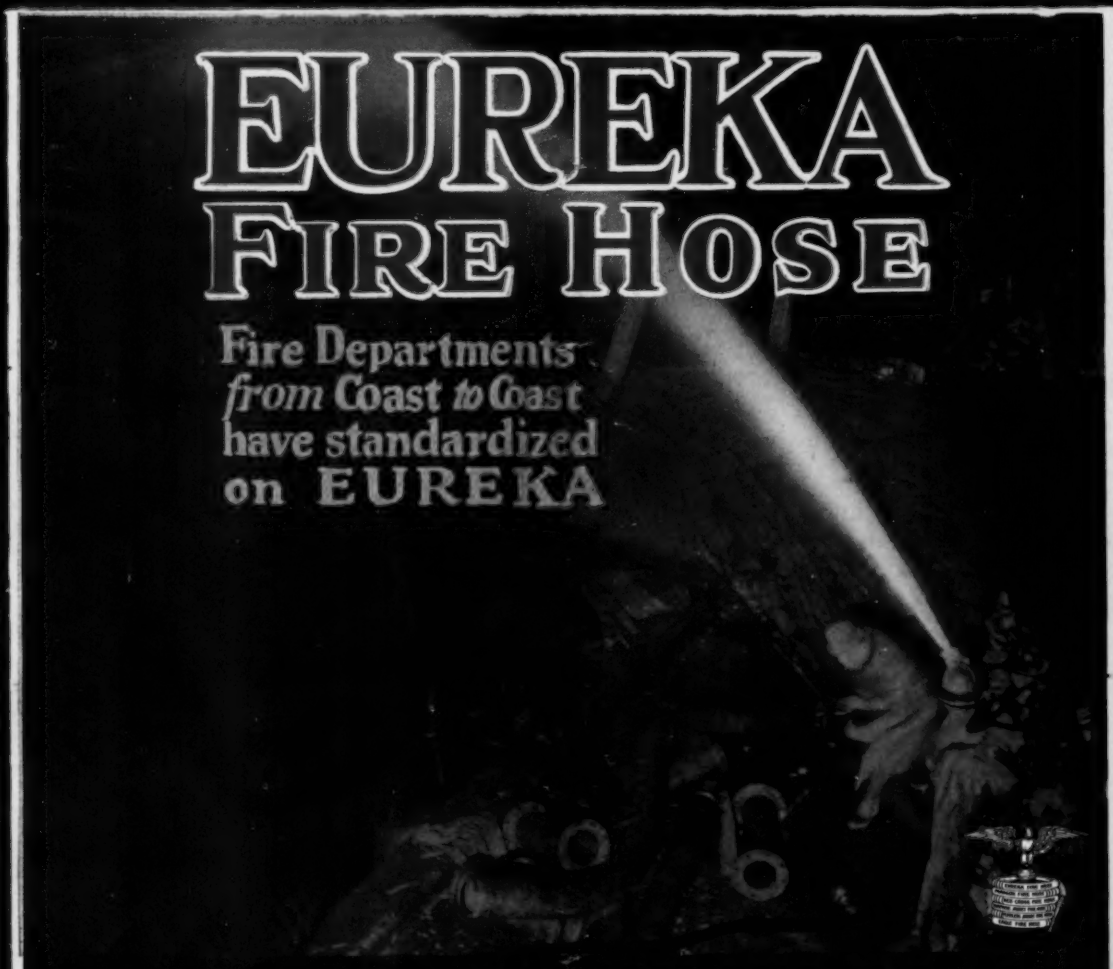

Eureka Fire Hose Manufacturing Company
50 CHURCH STREET, NEW YORK CITY
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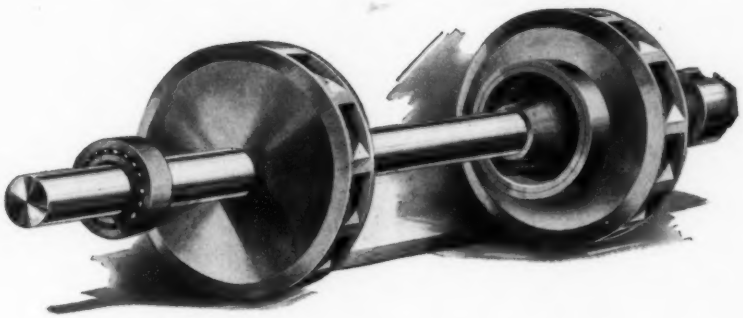
***(Formerly Heath Engineering Laboratories),* 354 Pine St., San Francisco, Calif.**

SIRACODE

A Coding Siren and then some!

Simplicity of Construction



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The Journal of the Fire Protection Profession Since 1877

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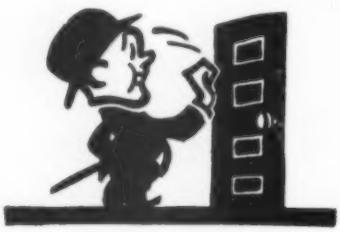

We Ask the Salesman a Question

"IS your company adequately represented in the advertising pages of this issue of FIRE ENGINEERING? (Yes, sir; every salesman is directly concerned in this question.)

¶ The more your prospective customer *knows* in advance about the line you are selling, the easier it is to do business with him when you meet him face to face.

¶ Fire officials in cities and towns all over the map, most of them potential customers, are reading this issue of FIRE ENGINEERING today. If they see your advertising, if they are given opportunity to read your sales message, it is bound to simplify your problem considerably. Advertising helps to make sales!

¶ A well-edited specialized magazine like FIRE ENGINEERING becomes indispensable to its readers. It is a real tool of their trade, and they use it accordingly,—the editorial and the advertising pages equally.

¶ If you and if *every* salesman would just take the trouble to let the home office know that FIRE ENGINEERING is more carefully read by water officials than any other magazine, it would do much toward prompting adequate advertising schedules where they are not already in force,—thereby helping our *readers*, our *selves;* your *company* and *your* self!

¶ What could be fairer?

The Publishers

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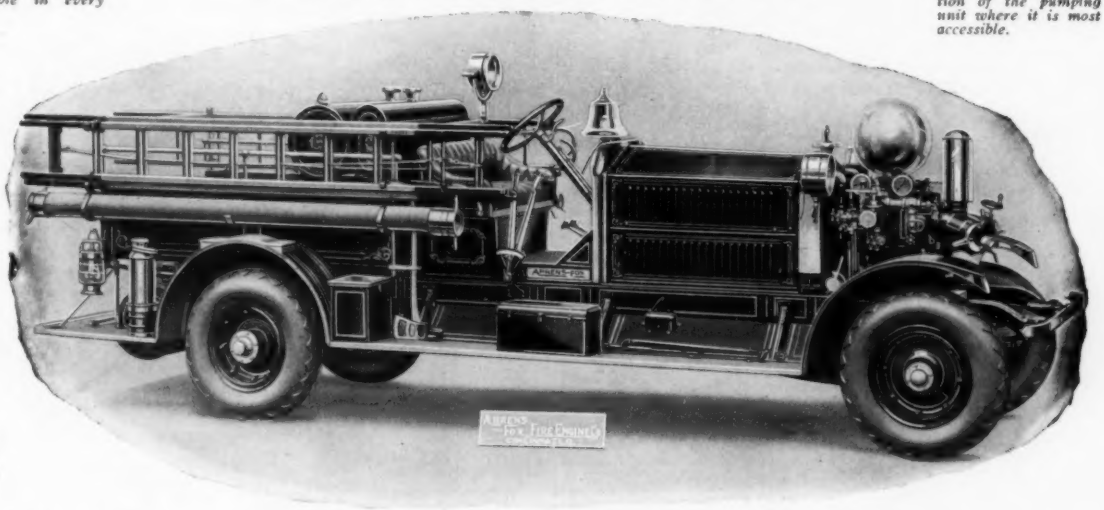
Contents of this issue copyrighted, 1927, by Case-Shepperd-Mann Publishing Corp., 225 W. 34th St., New York City
Entered as second class matter at the Post Office, Albany, N. Y., January 29, 1926, under the Act of March 3, 1879.

New Ahrens-Fox pumper — Complete, up-to-date, thoroughly dependable in every detail.

"Nothing is too good for fire service, and nothing but the best will do."—Ahrens-Fox.

Note the balanced and sturdy construction and the practical position of the pumping unit where it is most accessible.



Modern Ahrens-Fox Apparatus

with twin pumping plant and super-powered fire apparatus motor is the standard of quality

Fire officials throughout the country who are alive to their public responsibilities invariably place quality—efficiency and dependability—above price and every other consideration in the selection of apparatus.

When the lives of their fellow-citizens, and their children, to say nothing of property valued at hundreds of thousands of dollars, are dependent for safety against fire upon the perfect operation of their equipment in every emergency, the selection of apparatus other than the best money can buy is unpardonable folly.

Fortunately, fire chiefs, commissioners, and other municipal officials who have the say-so in the purchase of fire department equipment are more and more coming to realize this fact, and are giving the selection of apparatus the careful consideration the work deserves.

Almost as naturally as day follows the night many of these up-to-date officials turn to Ahrens-Fox apparatus as the standard of quality in the comparison of the relative merits of apparatus of various manufacture.

There can be no question but that this recognition of Ahrens-Fox supremacy is justified by the facts. The service records of Ahrens-Fox apparatus in use everywhere back up their high regard to the limit. Ahrens-Fox performance and supremacy are made possible by the painstaking investigations and thoroughly practical work of Ahrens-Fox fire apparatus engineers who have devoted their lives to this work, by the use of only the finest materials obtainable, by modern manufacturing machinery, and by the employment of especially highly skilled workmen.

To all fire officials we shall be glad to send complete information on request. No obligation, we just want you to have the facts. A postal with name and address will do.

May We Send You Complete Information?

The Ahrens-Fox Fire Engine Co.

"Builders of Quality Fire Apparatus"

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J. A. PRESCOTT
Fisk Bldg., New York

New England Representatives
CARLOW AUTO CO.,
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Chicago Representative
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California Representatives
PACIFIC FIRE EXTINGUISHER CO.,
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Pacific Northwest Representative
A. G. LONG CO.
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Minnesota Representative
JOS. F. AUEL COMPANY
718 Builders' Exchange Bldg.,
Minneapolis, Minn.

Canadian Representatives
THE BICKLE FIRE ENGINE CO.,
Woodstock, Ontario

"No! This Hydrant isn't Going to be out of Commission -I'll have it assembled again in a few minutes"

The complete take-down, inspection and assembly of a Darling Fire Hydrant is a few-minute-one-man-job.

Minimum maintenance is an important feature of Darling construction — all inside parts, including the main valve seat and the drip valve seats, can be quickly removed through the top of the barrel and easily replaced. The operation is extremely simple and permits overhauling of the entire system in one half the usual time.

And this economy is one which every Fire Chief appreciates.

That's why more cities every day are adopting Darling Fire Hydrants as standard equipment.

DARLING VALVE & MFG. CO.
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Chicago
Oklahoma City
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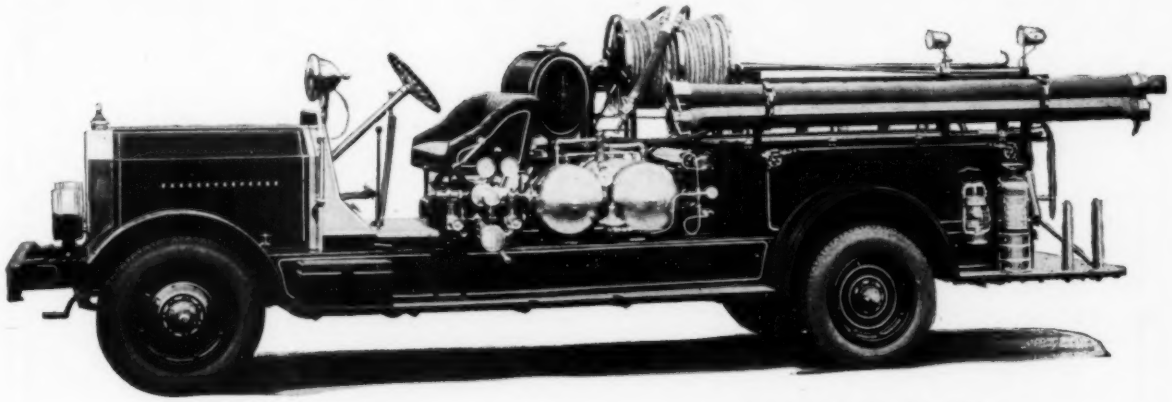
DARLING
FIRE HYDRANTS



The "THOROUGHBRED"
In looks as in action—on parade or at a fire—this Childs *Heavy Duty Apparatus fully justifies its name*

Pride in appearance counts for something, too!

OF course you want service first in fire apparatus. But if with maximum efficiency you can also get handsome appearance—!

On that basis Fire Chiefs take extra pride in the *Childs* "Thoroughbred." Every inch a rugged fighter—a glutton for punishment under heavy duty —yet well worth pointing out on inspection or parade.

In other words, a genuine thoroughbred no matter how you look at it.

Our literature tells the whole story of this powerful, fast, good-looking Heavy Duty Motor Apparatus —made in all the usual combinations.

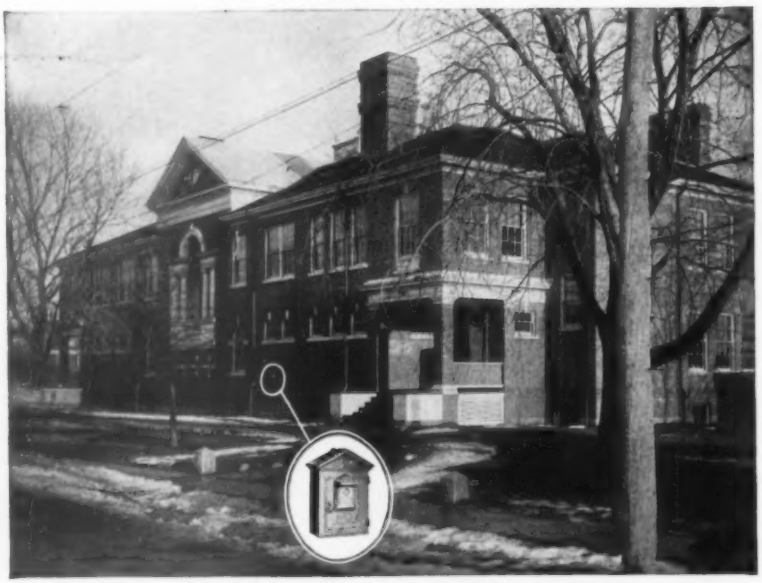
Foamite-Childs Corporation, Fire Protection Engineers and Manufacturers, 370 Turner Street, Utica, N. Y. Sales and Engineering Representatives in all leading cities. *Foamite-Childs of Canada, Ltd., Toronto, Ontario.*

Foamite-Childs Protection

A Complete Engineering Service

Against Fire

Protect the School Children From the Horror of PANIC



Schoolhouse at Plymouth, Mass., equipped with Dualarm System

PANIC, the grim reaper of children's lives in schoolhouse fires, strikes with heavy hand in the modern fire resistive building and the old wooden structure alike. Nobody knows when or where it will strike next; but whenever it does choose to strike it finds a fertile field in the highly imaginative mind of the school child. The smell of smoke from a balky furnace; a cry of "FIRE" from the trembling lips of a child; young minds quickly thrown into a frenzy; followed by small bodies tumbling down stairways and jammed at doors — such is PANIC, in the schoolhouse fire.

The fire department is the only organization capable of handling such a situation. Therefore if holocausts such as occurred at Collingwood, Peabody and Hochelaga, are to be averted, there should be ready and reliable means available for summoning this department. The first step in this direction is to equip each schoolhouse in your city with a municipal fire alarm box. If an interior alarm is desired the Dualarm will take care of the requirements. It sounds the interior alarm bells and sends an alarm direct to fire headquarters, simultaneously, with one operation and without the aid of a local battery.

The First Sand Cast Aluminum Box

Sand cast aluminum boxes were first manufactured by this Company some twenty years ago for the City of Milwaukee. This material was discarded shortly afterward as unsatisfactory for fire alarm boxes. Eight years later the Star Electric Company of Binghamton, N. Y., used this material, but soon discarded it for the same reason. Samples of these boxes, manufactured fifteen to twenty years ago, are on exhibition in our museum.

The Gamewell Company
Newton Upper Falls, Mass.

"A Box a Block"

The only Company engaged exclusively in manufacturing, selling and installing Fire Alarm and Police Signaling Systems through its own organization.

FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

The Journal of the Fire Protection Profession

VOLUME LXXX JUNE 1, 1927 NUMBER 11

Fire Protection in a Vehicular Tunnel

How the Holland Tubes Under the Hudson River Are to be Guarded Against Fire—Method of Construction—Placement of Extinguishers

By WILLIAM JEROME DALY, New York City

THE Holland Tunnel—the new twin tubes under the Hudson River between the City of New York and Jersey City, N. J., are the longest and largest subaqueous vehicular tunnels in this country. The tubes will be opened for traffic in the Fall of this year. From a fire protection standpoint only, this article has been written, as the tunnel presents some new phases in fire fighting and ventilation.

Wall Compartment for One Hand Fire Extinguisher. Light in This Instance is Placed Below the Extinguisher

As a sort of prologue, let me first give the readers of FIRE ENGINEERING this picture:

On May 23, 1906, the late Frank W. Higgins, Governor of the State of New York, appointed a committee to delve into the feasibility of a tunnel for vehicular traffic under the Hudson River. The need for a tunnel or a bridge from New York City to the New Jersey shore across the Hudson was long recognized. Out of the preliminary discussions grew the joint or dual authority — the New York and New Jersey Bridge and Tunnel Commission. It was decided to build a tunnel.

On March 31, 1922, construction work was actually begun, simultaneously on both shores of the river, under the expert engineering skill and indefatigable labor of the Chief Engineer of the Tunnel Commission, the late Clifford Milburn Holland*, Harvard, '06.

Description of the Tunnels

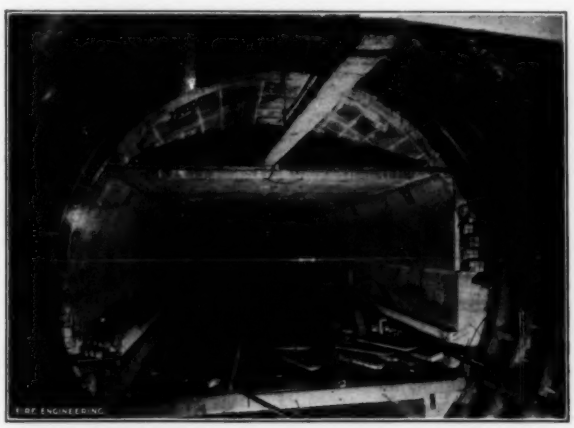
The total length of the tunnel is 9,250 feet; between portals 8,330 feet; between shafts 3,375 feet; under the river 5,480 feet. The roadways are 20 feet wide with 13'.6" headroom. The outside diameter of each tube is 29' 6"; the capacity is estimated at 3,800 vehicles per hour, 46,000 daily and 15,000,000 annually. The up-grade is 3.6% and the down-grade maximum 4.05%. The depth below mean high water is 72' to the top of the tunnel; the depth to the bottom of the roadway from mean high water is 93'. There were 496,500 cubic yards of excavation; the cast iron rings forming the tunnel lining amount to 115,000 tons and 129,400 tons of concrete were used in construction.

The tunnels extend east and west, the northerly tunnel being New Jersey bound and the southerly tube for New York bound traffic. Each tube is wide enough for two vehicles abreast. Traffic in each tube is in one direction. Vehicles cannot cross from one tube to the other, but employees, attendants, etc., can cross at three different points through companionways. The tunnel is lined throughout with white tile. It is illuminated as brilliantly as sun light. There is a sidewalk and guard rail on one side only of each tube for tunnel policemen on patrol. Thus you have a general picture of the structure which cost $48,000,000 to build.

Motor vehicles of any kind and character, excepting dynamite transportation wagons will be permitted to use the tunnels. Horse drawn vehicles will be barred because they are too slow. All vehicles will pay a toll, the rates to be determined.

The Ventilating Equipment

The ventilating equipment consists of 84 fans, varying from 25 to 200 h.p. each, but not more than 56 of the fans will be in service at any one time and these will be sufficient to ensure a circulation of air of approximately 4,000,000 cubic feet per minute. This means that the air in the tubes will be changed every 90 seconds. Each tube is divided into seven sections or ducts for the purpose of ventilation, with two intake and two exhaust fans alloted to each section. The incoming air is fed to the tunnels by means of a slit or horizontal opening along each side of each tube. This latitudinal slot is placed at about the level of the hub of the wheel of a motor vehicle.



Cross-Section of Holland Hudson River Vehicular Tunnel, Partly Completed, Showing Various Stages and Type of Construction

The air is not fed to the driveways with such pressure or velocity as to cause a draft. It is uniform and evenly supplied and the carbon monoxide which will be created by motor exhausts is limited to four parts in 10,000. The exhaust chambers are located in the ceiling and draw the air off to the ventilating

* *Mr. Holland died October 28, 1924, the day set for the final blast to "hole through" the tube. He died from overwork, such was the zeal and fidelity with which he prosecuted his task of Chief Engineer. In his memory, the name Hudson River Vehicular Tunnel was changed to "The Holland Tunnel." His successor was Milton H. Freeman who also died. The chief engineer today is Ole Singstad.*

buildings where the exhausts are discharged through tall stacks.

The Tunnel Water System

The tunnel water system consists of two 6" cast iron mains located on the side of the roadway above the curb. Connections to these 6" pipes are made through three sources in New York and two in Jersey City.

The water in the tunnel is maintained under pressure by means of four automatically operated 300 g.p.m. centrifugal pumps. These pumps are located in pump rooms in the two land shafts on

Compartment Containing Five Hand Fire Extinguishers, Sunk in Wall of Tunnel and Readily Accessible. Note Light Over Center Extinguisher

each side of the river. Electrical energy is supplied to these pumps from three different sources in New York and three different sources in New Jersey, so arranged that any one of these sources will be at all times available for use.

Pressure can be regulated to suit requirements and the capacity is sufficient to provide 80 pounds per square inch at the highest point of the roadway. The two 6" lines run continuously throughout the length of each tunnel. They are interconnected at five points so that at any single point in the tunnel the entire capacity of the line will be available. Valves are located at points approximately 480 feet apart in this line, so that any damaged section may be cut out for repairs without affecting the balance of the line. Hose connections are in niches provided with bronze doors, unlocked and ready for instant use. Each outlet has 100' of 2½" canvass hose rubber lined.

Standpipe and Foam Equipment

The four ventilation buildings are each equipped with two 6" standpipes provided with hose connections with racked hose at each floor. Siamese connections are provided so that the city fire department can connect with the standpipe system. Suitable pressure regulating valves will prevent the fire department from exceeding the capacity of the system. Thirty-five hundred gallon tanks for the standpipe system are located under the roofs of the buildings, and are supplied by four pumps of 300 gallons capacity. The pumps function automatically when the pressure drops ten pounds.

The main fire fighting equipment to be used in the tunnels will be fire foam, the product of the Foamite-Childs Corporation. Fire foam will be used both in the portable extinguishers and by the specially designed fire engine and emergency truck.

The Ready-to-Use Fire Extinguishing Arrangement

The ready-to-use equipment in the tunnels will be the following extinguishers:

443 of five gallons.
165 of two and one-half gallons.
120 of one and a half quarts.

The extinguishers are in wall cabinets, flush with the tiling and located on the sidewalk side of the tunnels about every 240 feet. As shown in the photograph, the extinguishers are arranged in sets of five and singly. The sets of five have four extinguishers of 5 gallons each and one of 2½ gallons. On the opposite wall is a singleton of 5 gallons, as shown in the photograph.

Sand boxes are located every 500 feet. Each box contains 10 cubic feet of sand. Telephones are every 480 feet. Refuge niches for the policemen to sit in and breathe pure air specially supplied for their health and comfort are located every 480 feet.

Taking Care of Surplus Water

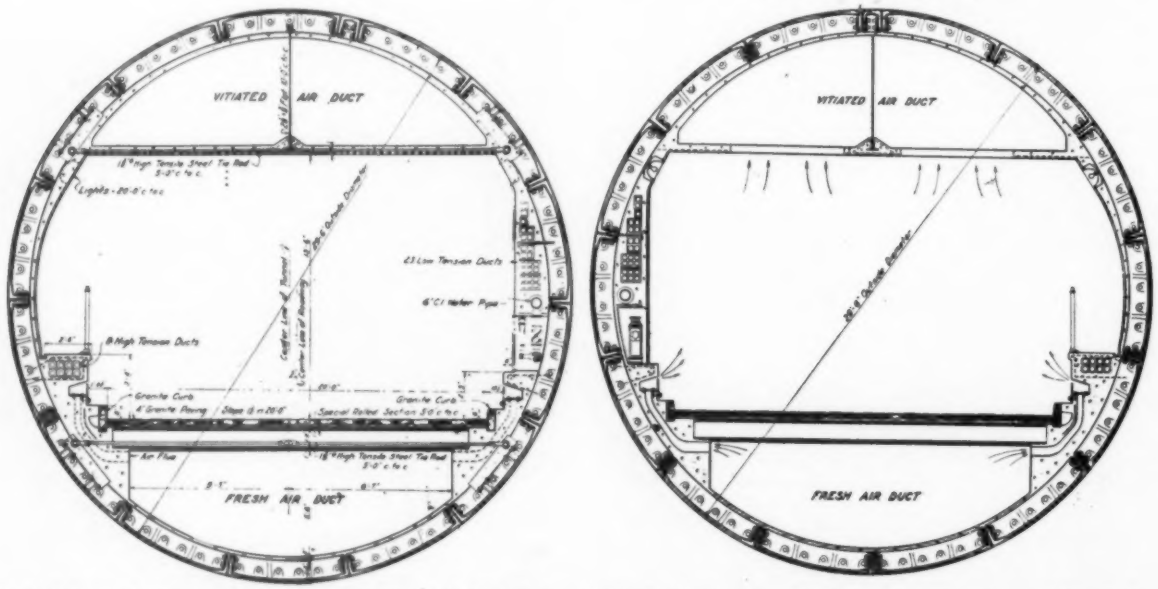
Nineteen drainage pumps are distributed throughout the tubes. The gutters will be open and ventilated. The drainage will be to one side of the roadway, i. e., the floor of the roadway will not be convex, but at a slight straight slant toward the gutter. There is no danger of gas pockets and consequent explosions, the engineers tell me, and for taking off water thrown on a fire, there is storage capacity for drainage to the extent of 4,000,000 gallons before the roadway reaches the point of flooding.

Three sources of lighting have been arranged for. The tubes cannot go "dark" until all three fail. There will be about 300 men trained for the combination job of police-firemen. These men will be schooled in handling the fire fighting apparatus and especially the use of the fire foam.

Fire Alarms and Traffic Control

Every 500 feet is a fire alarm box of the "push-the-button" type. They are located on the wall where the policeman will patrol the sidewalk. The boxes are designated by signs. The extinguishers are designated by lights. The lights in the extinguisher cabinets also indicate that the heating coils are functioning to keep the foamite from freezing. Pushing the button of the fire alarm box will cause a fire signal to register in both the New York and Jersey City offices of the tunnel.

(*Continued on page* 542)



Typical Cross-Sections of Holland Hudson River Vehicular Tunnel, Illustrating Various Features of Construction and Ventilation

What Does Salvage Work Include?

Salvage Principles—Methods of Protecting Goods—Effects of Fire, Water and Smoke on Merchandise*

THE realization that a large percentage of fire waste is actually a water loss has resulted in an effort, on the part of those actively engaged in fire-fighting, to improve loss records by reducing water damage. The common method used to accomplish this purpose is to spread waterproof blankets or salvage covers over stock and to direct excess water to points where it can readily be drained. Such activities constitute the the part of a progressive fire department should take in practicing salvaging operations.

A number of organizations have been practicing salvaging operations or methods for years and have reached such a stage of development and proficiency that their work can truly be called a science. The information and experience these organizations—fire departments, salvage patrols, adjustment and appraisal companies—have obtained, has been drawn upon in compiling this preliminary report. The Committee has, however, refrained from discussing fire-fighting methods except as in an aid in making clear a point otherwise possible of misunderstanding.

Accordingly the scope of work by the Committee has been limited to a discussion relative to salvage principles including methods of storing goods, the effect of water on various stocks, and the probable salvage value of various types of merchandise that have passed through exposure to fire, water and smoke, with a view to preparing suggestions, for the guidance of merchants, manufacturers, public officials and the general public, that will aid in reducing the fire waste.

SALVAGE PRINCIPLES

Since the intensity of the fire and therefore the amount of water, smoke and debris will vary for different fires, the amount of salvage possible for stocks of like kind will not always be the same. There is, however, a definite relation between certain characteristics of merchandise and the salvage to be expected. These characteristics are generally analyzed under the headings: Removability, Combustibility, and Damageability.

Removability

The element of time enters largely into any fire. The period it would take for fire to spread from one point to another can be utilized by removing articles, which would otherwise be damaged, to some point of safety. This is a natural impulse on the part of the individual, but is seldom practiced in a systematic way except by well-trained and highly developed organizations. Some fire departments make it a point to move or otherwise protect merchandise before directing water streams, when events permit. It is common for salvage organizations to carry stock to adjoining buildings, an operation that the standard fire insurance policy recognizes as good practice in a clause protecting property so removed.

Removability is of course dependent on size and weight and is probably of greatest value when considered in connection with grade floor occupancies. However, it is a factor wherever salvage work is possible as it permits grouping of stocks so that they may be protected with a salvage cover.

Combustibility

The ease with which material will burn or its susceptibility to burning enters largely into the amount of salvage one may expect. The combustibility of the stock is not always dependent on the stock itself, but may be largely contributed to by the way the stock is wrapped, boxed or packed. Another factor is the amount on hand, whether this is spread out for display or piled in quantities as in warehouses. A spread out stock may increase the area affected by fire. Improperly piled merchandise may, with certain stock, increase the danger of spontaneous ignition; or, because of concealed spaces and inaccessibility be subjected to great damage for the reason that fire in such piles of stock cannot be easily located or reached, nor is the stock as easily protected from a salvage viewpoint.

Irrespective of the method of packing, warehousing or displaying, stocks are usually considered as in one of five classes of combustibility:

1. Slow burning or incombustible.
2. Moderate burning.
3. Free burning.
4. Intense burning.
5. Flash burning.

* From a report read before the annual meeting of the National Fire Protection Association at Chicago, Ill.

As was previously remarked, combustibility will be largely governed by the material used in packing and some stocks should grade as more hazardous than others because of the nature of this feature. When stocks are mixed in large quantities the extent of combustion will usually be dependent on the stock of highest combustibility.

Damageability

The extent of damage possible will be dependent on the method of packing or wrapping and the degree of protection furnished by such covering. The inherent ability of certain stocks to withstand combustion, heat, water, smoke, falling debris, breakage, dirt and the removability of the stock are factors affecting salvage. For purposes of this discussion stock can be considered as divided into five classes of damageability:

1. Low.
2. Medium.
3. High.
4. Extra high.
5. Indefinite (applied to a mixed stock or a constantly changing stock).

One can conclude from the foregoing that removability, combustibility and damageability are largely dependent on the methods used in displaying, storing and packing. In order that goods be salvaged it is essential that they be arranged or stocked so that they can be easily and quickly protected and there are certain other common sense precautions that should be complied with.

METHODS OF PROTECTING GOODS

Generally speaking, merchandise in transit, in warehouses or on display should be protected against water damage and packed in units of a size capable of being readily moved and handled, in containers of sufficient strength to maintain the integrity of the protection under conditions met in practice, bearing in mind that not only may it be exposed to rains and dampness, but also water used at fires. An ideal container should be strong, waterproof, resist smoke, be readily handled and be fire-resistive.

Waterproofing will necessarily involve the use of oil, wax, asphaltum or other compounds. The hazard due to an accumulation of such treated wrappings when unpacking, their combustibility and effect on various merchandise must be considered. It is apparent that there is an opportunity for improving from a salvage viewpoint, the packing of shoes, rugs, hardware, paper, furniture, and a number of other articles.

Warehousing or Storage

In order to facilitate salvage certain methods described below should be followed in the storage of merchandise not immediateiy needed for display or sale.

Water has a tendency to flow down side walls regardless of type of construction. For this reason, stock should not be piled against walls or columns. There is a fairly free flow of water through most floorings and such water collects in pools and puddles. Because of this all stock should be skidded and not stacked directly on the floor.

A salvage cover as commonly used is either 12 ft. x 18 ft., or 14 ft. x 18 ft. and when stocks are piled they should never cover an area greater that one of these covers. To facilitate spreading covers a space of at least 3 feet should be left between the top of the stocks and the ceiling. Where stacks are high, the piles should be stable with some means provided, such as staggering boxes, so that a man can climb to the top of the stack to spread covers.

Regulations for the storing and handling of various articles such as combustible fibres and rolled paper require certain aisle space to provide for expansion due to absorption of water, for removal of exposed stock, etc. Accessibility is a requirement in any case and stock should be piled with a view to permitting easy access and rapid removal, limiting concealed spaces, avoiding the formation of spaces which would act as flues, and wherever practicable should be so arranged that stocks of relatively high combustibility are separated by stocks of lower combustibility.

Displaying

A merchant's main purpose is to so display his merchandise that it will attract sales. Stock in frequent demand is usually located where it can be easily and quickly purchased and stocks

requiring more time for selection, such as hats, clothing, etc., are usually in convenient though less accessible places. In most large stores storage and workrooms are on the top floor and shipping rooms in the basement.

While the sales viewpoint will dictate the general arrangement and display of merchandise in stores, there are opportunities to arrange or display goods in a manner that will increase salvage in case of fire without interfering with sales. For instance, there is no reason why stock should not be separated according to combustibility and at points advantageous from the standpoint of fire and water damage. Regardless of the association of different classes of merchandise, there is a very apparent opportunity to improve conditions under which stocks are now displayed for sale.

Shelving

Shelving should be so constructed that goods cannot be pushed back against the wall. A space of 2 inches between the wall and the back of the shelves should be maintained. This can be done by closing the back of the shelving with wire netting. The top of shelving should be kept free from accumulations of boxes or similar things and should have a clearance to the ceiling sufficient to permit a salvage cover being placed so that it can hang down the back of the shelving, forming a drip, for at least two feet. Where the foregoing is not complied with and shelving uprights are carried to the ceiling in order to wedge such shelving in place, the space between uprights should permit a cover to be placed so as to hang down the back. This will require at least 12 feet between uprights.

A rigid waterproof roof extending from the wall to six inches in front of the shelving is recommended, with a wooden apron at least four inches in depth at the vertical line of the front edge of the shelving. This roof should be pitched not less than 1 inch to the foot.

Cases, Cabinets and Display Equipment

As a general thing, display furniture should be sturdy; enclosing cases and cabinets should be watertight; shelving and counters should be designed to permit easy covering with salvage blankets; and all open trays and counters should be covered at night with a light, waterproof dust-cover.

Cases in which goods such as jewelry are commonly displayed should be watertight.

Cabinets are often used to enclose cloaks, furs and expensive garments; ordinarily these are glass enclosed, and cover considerable area. The roof or covering of such cabinets and of dressing rooms should be watertight and strong enough to hold a man's weight.

False Ceilings and Decks are commonly erected to support lighting fixtures at a height simulating actual conditions of installation. They should be sturdy and watertight.

Racks used to support dresses and suits on hangers should be so constructed that if a cover is thrown over them the cover will not rest on the shoulders of the garments as this occasionally results in soiling the garments. Racks should be so constructed that they are not easily tipped over.

Aisle Trays and Tables should be easily moved, should not be capable of being easily upset and should not be filled to overflowing. In the event of fire these aisle tables will be shoved out of the way and excess stock is likely to be spilled. At night they should be covered with a light dust and waterproof cover.

Counters or Tables displaying china and glassware which is more subject to breakage than any other damage are covered with the intent of protecting such stock from falling plaster and other debris. The tables on which glassware and china is displayed should be equipped with a pipe frame over which a cover can be thrown without disturbing the stock.

Boxes or Containers used should be able to withstand a reasonable amount of water. Bolt goods, silks, woolens, linens and similar fabrics should be wrapped in a waterproofed paper. The same precautions apply to paper and hardware. In general it may be said that all goods carried in some form of container or wrapping should have the container or wrapping of a grade capable of withstanding the smoke and water to which they may be subjected at time of fire.

THE EFFECT OF FIRE, WATER AND SMOKE ON VARIOUS ARTICLES OF MERCHANDISE

In considering the effect of a fire on various stocks it is generally conceded that the greatest salvage value will ordinarily be found in staples for the reason that these can be reclaimed and have a market even at a reduced price. This is particularly true for dry goods. Novelties, generally bought for gift purposes, lose almost their entire value when damaged. Among the many things affecting salvage value is the fashion of the day or style; a change of style may reduce the value of any article to practically nothing. Shopwear, indicated by faded colors, tarnished metallic embroideries, and soilage, to mention a few of the common effects, must be considered in determining values. In the following list little attempt has been made to estimate the value of salvage, the discussion being limited to cause and effect.

Art Embroidery Goods

This class includes cottons, linens, silks or mixed fabrics, usually stamped or stenciled in colors to be worked in embroidery silk, cotton or twist. Such stocks accumulate in stores particularly before Christmas.

The value of the finished articles is mostly in the work put in on the piece. Damage from smoke and water stains is likely to be heavy, particularly in colored materials. White pieces can sometimes be washed. Laundering will destroy new appearance in sheet material.

The embroidery silks or twist used may suffer heavily from water damage due to colors running. Some silks become rough and hard to work if thrown around or wet.

Baled Goods

Compressed bales of goods of all kinds are invariably less affected by fire than loose or loosely packed materials of the same kind, for the obvious reason that though the outside of the bales may become charred and burned the centers are often unaffected by fire. The salvage of baled goods can be improved by wrappings of waterproofed material.

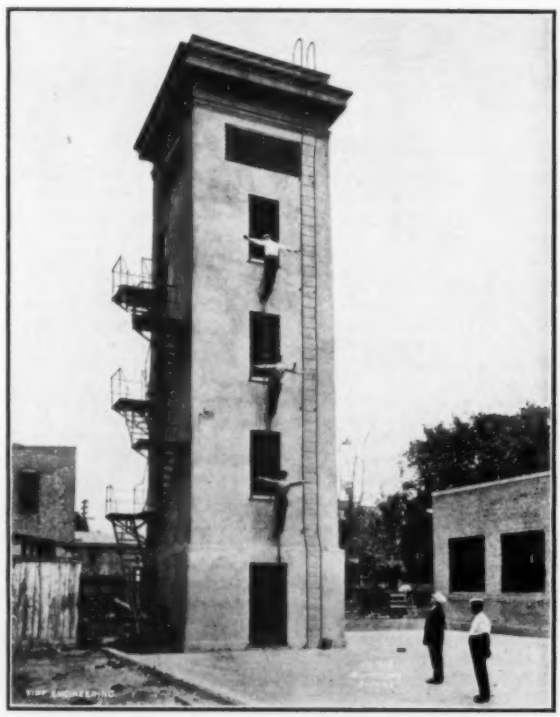
Bolt Goods

Various grades of silks, woolens, linens, etc., are wrapped in ordinary grades of paper, and frequent losses occur, due to failure of such paper ot withstand water. Obviously bolt goods should be wrapped in waterproof material.

Coffee

Coffee is packed by jobbers in many different kinds of packages. Expensive coffee for retail often comes packed in tins, which is intended to retain the flavor; this package is waterproof.

(*Continued on page* 548.)



Drill Tower in Baton Rouge

Because of the universal interest in the construction of drill towers for the proper training of the firemen and rookies, the illustration of the tower erected at Baton Rouge, La., should be of interest.

The tower is constructed of concrete and has a metal ladder from the ground to the roof. The tower has three landings, and at each floor fire-escape landings are provided. The cost of the construction of drill towers are not at all prohibitive and several ideas may be gained for the design of a drill tower from the one illustrated.

Check Ammonia Fumes With Water

Handling Large Fire Would Have Been Made Easier by Liberal Use of Water Around Ammonia Equipment

THE fire described in the Department of Administration in the last issue of this journal was interesting in that it clearly indicates to just what extent the presence of ammonia may hamper the work of the fire department.

The sketch herewith shows the layout of the property involved and surrounding the fire.

The department in the city in which this fire occured consists of 18 engine companies, 5 hose companies, 12 truck companies and 1 water tower.

Response to the first alarms at the location of this fire is as follows: (Company numbers assigned for convenience only). First alarm, Engine Companies Nos. 1, 2 and 3; Hose Co. No. 1; Ladder Co. No. 1, (aerial truck); Ladder Co. No. 2.

Second alarm, Engine Cos. Nos. 4, 5 and 6; Hose Co. No. 2; and Ladder Cos. Nos. 3 and 4.

Third alarm, Engine Cos. Nos. 7, 8 and 9; and Ladder Cos. Nos. 5 and 6 (ladder 5 being equipped with aerial truck).

Fourth alarm, Engine Cos. Nos. 10, 11 and 12, and Ladder Co. No. 7.

Fifth alarm, Engine Cos. Nos. 13, 14 and 15 and Ladder Co. No. 8.

All pumpers are either 700 or 750 gallons per minute capacity, and motor driven.

Water pressure was excellent in the neighborhood of the fire, there being plenty of hydrants on good sized mains and approximately 65 pounds in the mains at all times.

The Fire

The fire apparently started around 1 o'clock in the morning of a very hot summer night and had been burning about an hour when discovered at 2 o'clock. At the time of discovery, when made by a patrolman, the engine room and the cold storage room were well ablaze.

The officer had noted a strong odor of ammonia and upon investigation discovered the fire.

A strong breeze was blowing from the southeast, carrying the ammonia fumes to the rear of the old hotel building, the rear windows of which were mostly open.

The method of handling the fire as followed by the fire department is given in the last issue of this journal.

Suggested Method of Handling Fire

In this fire, as in other fires where ammonia apparatus is involved and where there is a large quantity of ammonia gas present, the liberal use of water has two effects. In chilling the ammonia apparatus it reduces the pressure therein and thus aids in preventing the rupture of ammonia tanks or other ammonia apparatus containing gas under a high pressure or liquified ammonia.

The second effect of water is to absorb great quantities of ammonia gas and thus make it easier for men to operate in their neighborhood of the fire.

Water has a remarkable power in absorbing ammonia gas and the gas on the other hand shows great activity in passing into solution in water.

The method of handling this fire might be summed up in three general steps: First, the transmission of additional alarms, which judging from the advanced stage of the fire, would include second and third alarms.

Second, thorough ventilation of all buildings likely to be charged, or in danger of being charged, with ammonia fumes. Liberal use of water to cool down ammonia apparatus as well as absorb the gas in the air.

In addition to the above, the use of heavy streams is most essential in covering exposures. The layout of the plant and surrounding buildings is such that close work in covering the large buildings exposed to the north is not possible and that the employment of big streams is most essential to secure the necessary range and thus do effective work in covering these exposures.

Assignment of Companies

First call additional help—second and third alarms.

Assuming that the first alarm is covered by the companies described in the last issue of this journal, the assignment of these companies would be as follows:

Engine Co. No. 1 at hydrant No. 5, and two lines stretched to a 1½-inch nozzle with pipe holder. This pipe should be placed on the roof of the two-story separator building and so operated as to cover the exposures across the railroad tracks from the burning engine room and cold storage room of the plant.

1½-inch nozzle is thoroughly satisfactory for this work, and being aided by the wind blowing from the southeast the stream can do effective work in covering the buildings seriously exposed.

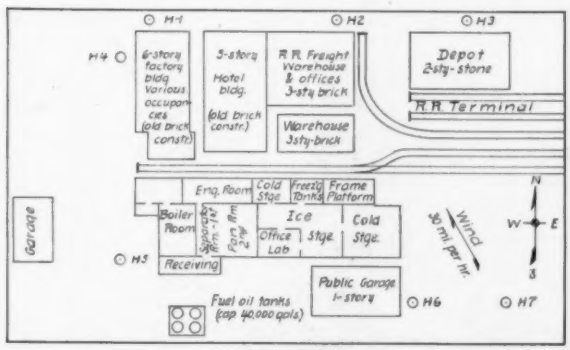
Engine Co. No. 2 at hydrant No. 6 and two lines stretched as follows: First line through the ice storage portion of the plant to operate on the fire in the cold storage room and cool down whatever apparatus is available and within range.

The second line to be stretched through the separator building to operate on the fire in the engine room.

It is understood, however, that before these lines are stretched in, proper ventilation is provided or has been provided by the ladder companies arriving on the first alarm assignment.

Engine Co. No. 3 placed at hydrant No. 7 and a single line stretched by way of the same platform to the north of the cold storage plant to operate through the freezing tank room onto the cold storage room fire. If it is not possible for the line to reach the cold storage room fire it should operate in the freezing tank room in cooling off apparatus which may be exposed and performing such other service as would be helpful in holding thee fire.

Engine Co. No. 4 at hydrant No. 2 and a single line stretched due south to the corner of the 3-story brick warehouse, this line



to operate from a distance on the cold storage room fire. If conditions are desirable and if a greater range of stream is needed, two lines instead of a single line may be stretched from Engine Co. No. 4 and these two lines siamesed into a 1½-inch pipe with holder. This large stream will do very effective work not only in wetting down the cold storage building but also the engine room alongside of it as well as aiding in covering the exposures to the 3-story brick warehouse and the hotel alongside.

Engine Co. No. 5 to be placed at hydrant No. 3 and a single line stretched along the same route, this latter line to assist the two lines operating on the cold storage room fire. With the aid of the large stream from Engine Co. No. 4 it may be possible for this second line from Engine No. 5 to work at close range on the cold storage fire.

Engine Co. No. 6 to be placed at hydraant No. 4 and a single line stretched alongside the 6-story factory building and along the spur tracks to operate on the engine room blaze. If this line is unable to get sufficiently close to do effective work on the engine room fire, a second line should be laid and the two used through a 1½-inch nozzle with pipe holder. This will make possible the employment of this line for covering exposures as well as operating on the fire direct.

Engine No. 7 to be placed at hydrant No. 1 and a single line stretched parallel to the line from Engine Co. No. 6, this line from Engine Co. No. 7 to operate through the boiler room on the rear of the engine room fire. This will prevent the fire from extending and will be of considerable help to the line already operating in the separator room on the engine room fire.

It is believed that this assignment of lines can hold and extinguish the fire.

The fire has been completely surrounded, the exposures have been covered, and streams of large calibre will have been operating on the two main points of intensity of the fire.

However, if Engine Cos. Nos. 8 and 9 are required, they will be on hand to get additional lines in operation at the point desired.

Employment of Truck Companies

Truck Co. No. 1 upon responding should send two men to empty the hotel building and the balance of members of this company to assist engine companies in opening up and in ventilating.

Members of Truck Co. No. 2 to be used in ventilating by opening roofs, doors, and windows of buildings likely to be charged with ammonia fumes.

Truck Co. No. 3 may assist in ventilation if needed, and if not needed for this service the men should be assigned to go into the 3-story brick warehouse and the hotel building as well as the 6-story factory building to close windows and shutters and note conditions therein.

Truck Co. No. 4 to assist engine companies on hand in opening up and manning lines if necessary.

Likewise Truck Cos. Nos. 5 and 6 may be employed in assisting engine companies in stretching in or manning lines if they are not needed for other purposes.

As noted previously, it is most essential that early and thorough ventilation be provided as well as large calibre streams put into use.

Chief Wray of El Paso Resigns

John Wray, chief of the fire department in El Paso, Texas, resigned after a service of twelve years as head of the department. It is believed that political machinations are the cause for the resignation which will become effective on July 15.

Chief John Wray

Chief Wray came from Memphis, Tenn., where he was in the fire service for twenty-two years. Shortly after coming to El Paso, he changed the apparatus from horse-drawn to motor-drawn equipment. During his leadership, the department has increased from thirty-nine men to ninety-five men, and several new fire stations have been built.

It is believed that Mr. Wray will devote his time to his ranch at Vado, N. M.

The resignation of the chief did not come as a surprise to those in El Paso who were versed in the political movements. No one has been appointed to fill the vacancy, and Mayor Thomason stated the decision will be entirely up to the civil service commission and that he would appoint whomsoever they selected for the office. Chief Wray is a director of The International Association of Fire Chiefs.

New York Tenement Law Not Modified

Mayor Walker of New York City refused to modify the interpretation of the tenement house law in order to satisfy conditions in the apartment house construction whereby cooking privileges would be allowed.

Some of those who petitioned the Mayor for some consideration frankly admitted that the most potentious apartment house hotels had provided, under the guise of pantries, high powered electrical appliances for cooking. By eliminating the kitchen they had taken advantage of a number of economies in construction such as fire escapes and light areas. These are required under the terms of the tenement house law.

Mayor Walker declared that the survey being conducted by inspectors under the direction of Tenement House Commissioner Martin had shown that violations of these restrictions, even in the costly and pretentious apartment hotels, as well as in the older one-family dwellings which had been converted into three-family houses, were almost universal and that Mr. Martin and the Corporation Counsel's office were under instructions to proceed against violators of the law, both landlords and tenants, without discrimination.

"By reason of your very admissions here today," said the Mayor, "you have made it impossible for me to grant your request, even though I might feel some disposition to do so. You have admitted frankly that the law is being extensively violated and you have virtually asked that I, as the Chief Magistrate of the city, 'wink at it.' The responsibility for any disaster that might ensue as a result of a tolerance of such violations is now placed directly upon my shoulders. Months ago the Fire Commissioner, the Fire Chief and the underwriters assured me that many of these converted houses constituted a serious fire hazard. Fires have occurred in some of them recently in which human lives have been sacrificed.

"In addition to that, there was a test case made in the instance of the Hotel White; the Court declared that the law was being violated there and imposed a fine. The Corporation Counsel has declared that the law is clear and mandatory as it stands upon the statute books. What, then, would be the Mayor's position, if lives should be lost in a fire due to violation of these regulations? My position, gentlemen, the position in which you seek to place me, would be that, though I had been warned of the peril by the fire authorities, though I had learned that the Coure held that these limitations are valid and should be enforced, I had neglected to enforce them, because their stringency might scare away prospective tenants and reduce the profits upon somebody's investment."

The Mayor declared in emphatic tones that he declined to be placed in any such impossible position. While he could feel some sympathy for investors who might be forced to suffer, he would never consent, he said, to lend himself either to a non-enforcement of the law or to an attitude of inactive tolerance pending modification of the law which may be hoped for in the indefinite future.

Through the cooperation of Corporation Counsel George P. Nicholson and Tenement House Commissioner Walter C. Martin, with this corps of inspectors who recently have been making an extensive survey in Manhattan and Brooklyn, thousands of infractions have been listed, it is said, and these will be prosecuted as rapidly as possible. On one day last week seven convictions were imposed and fines were imposed in Magistrate Simpson's court.

New York Spouts Her Welcome to the Navy

New York city welcomed the U. S. Navy fleet consisting of more than a hundred battleships and tenders. The boats anchored for a month in the Hudson river before proceeding to various stations for practice in warfare. As the fleet entered the New York harbor, the fire boat shown in the photograph sent up eight powerful fire streams as an indication of the city's welcome. In acknowledgement, the band on the cruiser Seattle, flagship of Admiral Hughes, played "East Side, West Side" and the warships proceeded to their anchorage.

Nampa, Ida., May Have Two-Platoons—A two-platoon system may be installed about June in Nampa, Ida.

New Rules of New York Fire Department

This Fifteenth Installment Covers Sections Dealing With the Bill of Dress, Including Coat Badge and Buttons, and the Appendix

FOLLOWING is the fifteenth installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering the Bill of Dress, including Coat Badge and Buttons and the Appendix to the Book.*

Bill of Dress (Continued)

COAT BADGE

SEC. 318. Chief Officers—A white metal badge, gold plated, with designation of rank and registered number.

Officers—A white metal badge, with designation of rank and registered number.

Engineers of Steamer—Same as uniform cap, to be fastened with a pin and improved catch.

Firemen—Same as uniform cap, to be fastened with a pin and improved catch. The coat badge shall be worn on the left breast at the level of the second button from the top, midway between the centre of the body and the side when worn on the coat, and an inch to the right of the left row of buttons on the overcoat.

Ununiformed Firemen—The same as the Uniformed Firemen's badge, except that the words "Ununiformed Fireman" appear in the centre.

Theatre Detail Badge—Members detailed to theatres and places of amusement. A white metal oval, 2⅝ inches long and 2 inches high in the centre, surrounded with an ornamental border, with the words "Theatre Detail" in blue enameled letters on raised ribbon on top, the registered number on small raised oval in centre, and the words "Fire Department, New York" in raised letters below; to be fastened with a pin and improved catch.

SEC. 319. The buttons (for not more than three suits), cap and coat badges, and insignia of rank, shall be furnished by the Department without expense to the members.

Members promoted to the rank of Chief of Battalion shall return all white faced buttons to the office of the Chief of Department within 10 days after promotion.

BUTTONS

SEC. 320. Chief of Department, Deputy Chiefs of Department and Chiefs of Battalion—To be of white metal, with gilt face, of the following description:

Overcoat (except the cuffs)—Round, one inch in diameter, with convex, roughened face, having the initials "F. D." in block letters one-quarter of an inch high in the centre, the words "City of" at the top, and "New York" at the bottom in block letters one-eighth of an inch high, near and parallel to the rim around the button, which rim is to be bright and about one-sixteenth of an inch wide; buttons to be attached to the coat by means of an eye and white metal wire securely fastened to it.

Coat (except the cuffs)—The same as overcoat, except that they are to be three-quarters of an inch in diameter, with the dimensions of all the parts described proportionately reduced in size.

Cuffs of coat and uniform cap—Same as overcoat, except that they shall be five-sixteenths of an inch in diameter, with the dimensions of all parts described proportionately reduced in size.

All other Parts—The same as Chief of Department, except that the buttons are to be of white metal throughout.

SEC. 321. For the loss of Department property, members shall be subject to the following fines:

Cap badge	$5.00
Coat badge	5.00
Theatre detail badge	5.00
Official badge	5.00
Insignia of rank	1.00
Fire alarm box key	1.00
Copy of Rules and Regulations	1.00
Copy of Calisthenic Manual	.50

SEC. 322. All rules, regulations or orders, general, special or verbal, issued or promulgated, conflicting in any manner with the foregoing rules, are hereby revoked, repealed, countermanded and rendered inoperative, and of no force or effect.

APPENDIX

SEC. 323. As it is highly desirable that there should be greater uniformity and certainty in estimating the degree of risk undergone by a member of the uniformed force to entitle him to a merit rating in any of three grades, enumerated by the Civil Service Commission, regard being had to the fact that the calling of a fireman is at all times fraught with personal risk, and that some greater degree of danger than this is essential to the award of a rating by the Board of Merit, the following classification is established:

Class I. To entitle a member of the uniformed force to a rating in this class the act under consideration should involve a degree of danger properly to be characterized as EXTREME PERSONAL RISK.

Class II. To entitle a member of the uniformed force to a rating in this class the act under consideration should involve a degree of danger properly to be characterized as GREAT PERSONAL RISK.

Class III. To entitle a member of the uniformed force to a rating in this class, the act under consideration should involve a degree of danger properly to be characterized as UNUSUAL PERSONAL RISK.

"A"—Preliminary Signals

3—Preliminary signal for Special Buildings.
4—Chief of Battalion.
5—Engine Company.
6—Hose Company, High Pressure Company or Hose Wagon of Engine Company.
7—Hook and Ladder Company.
8—Fuel Wagon (coal or gasoline and oil).
9—Water Tower.
10—Rescue Company,—Police Emergency Wagon.
11—Telegraph Test.
12—Fire Patrol Wagon.
13—Breakdown of Apparatus (or unable to leave quarters).
14—Tugboats.
15—Engine Company to locate.
16—Boat Tender.
17—Hook and Ladder Company to locate.
18—Searchlight Apparatus.
19—Increase, reduce or shut down pressure on High Pressure System.
2-2—Second Alarm.
3-3—Third Alarm.
4-4—Fourth Alarm.
5-5—Fifth Alarm. (Also for Master Station use).
5-7—Engine Company, Hook and Ladder Company and Chief of Battalion first due.
6-6—Borough Call for Manhattan and The Bronx.
7-7—Borough Call for Brooklyn and Queens (except Rockaway).
8-8—Borough Call for Richmond.
9-9—Simultaneous Call.
12-12—Police Riot Call.
13-13—High Pressure System Breakdown.
2-2-2—(a) Out of service.
(b) Pay signal.
3-3-3—Call for men only.
4-4-4—In service.
5-5-5—Sappers' and Miners' Company.
6-6-6—Department Ambulance.
7-7-7—Public Ambulance.
8-8-8—Borough Call for The Rockaways.
9-9-9—High Pressure System in Service.
13-13-13—Emergency Telegraph Squad.
2-2-2-2—Engines only.
4-4-4-4—Release of Officers and Members on Off-tour.
6-6-6-6—Recall of Officers and Members on Off-tour.

TELEGRAPH SIGNALS

Taps.
3—Repeat, I do not understand.
2-3—All right, I understand.
3-5—Rescue Company out to a fire.
6-5—(a) When received at street box, go to telephone and call the platform.
(b) When received on Morse Key on combination

(*Continued on page 552*)

TESTS OF BUILDING MATERIALS BEING STANDARDIZED RAPIDLY

Various Methods of Testing Fire Resistive Qualities of Materials in Vogue —Bureau of Standards Makes Test

DURING the past forty years there have been various tests made by numerous agencies on the fire resistive qualities of building materials. Each of the laboratories have made the tests in accordance with standards that they have laid out.

In 1897 the British Fire Prevention Committee organized the Universal Standards of Fire Resistance adopted by the International Fire Prevention Congress which met in London in 1903. The tests prescribed for fire exposures ranging from forty-five minutes with a furnace temperature of not less than 1,500° F., to four hours with a maximum temperature of 1,800° F., but the committee in charge of these tests generally exceeded the maximum range by about 100° C. or more. The British standard has never been adopted in American practice.

The New York procedure of testing floors and partitions for construction in the city was started in 1896. The tests prescribe a temperature of not less than 1,700° F. at the end of thirty minutes after which the heat is regulated so that the average over a four-hour period will be 1,700° F. The rules also prescribe the size of the test floor, the load to be carried during the test, the size of the nozzle, water pressure, and so forth. In 1907 fire tests of thirty masonry partitions were conducted by the United State Geological Survey at the Underwriters' Laboratories in accordance with this procedure with the exception that the tests were only conducted for two hour periods and there was a difference in the application of the hose streams. The Underwriters' Laboratories conducted partition tests up to 1917.

American Practice of Tests

Since the American practice of firing internally within the building approaches more nearly the actual conditions at the time of the fire, the more rapid rise of temperatures have been adopted, after a conference with the organizations cooperating for these experiments. The prescribed rules are 1,550° F. for the furnace temperature at the end of the first half hour, 1,700° F., at the end of one hour, 1,850° F. after two hours. From this point, a linear rise of 75° F. per hour was prescribed which gave a temperature of 2,000° F. at the end of four hours or 2,300° F. at the end of eight hours. The average temperatures obtained during the first four hours approximate those obtained during the New York city tests. The test described was adopted by the American Society for Testing Materials in 1918 as a revision of its fire standards, and this together with specifications on floors and non-bearing partitions was adopted as a tentative American standard.

Bureau of Standards Conducting Test of Building Materials.

A white heat, the result of a three day fire, was used in testing the fire resistive qualities of building materials. The government observers are noting the effect of the fire through specially constructed apertures in the building.

Consideration of Pyrometer

All of the previous tests did not consider the pyrometer from of measurement of furnace temperature, and following the completion of the column tests, considerable work was done to establish a standard for the size of the pyrometers used in the furnace. At first a thermalag of several hundred degrees Centigrade was found for the ordinary type of thermocouple with a porcelain tube. After a few hours, this lag became only a few degrees, but there was a difference as the result of the pyrometers, furnace walls—this often remained as high as 50° C.

In 1924 a sectional committee was organized by the American Engineering Standards Committee to formulate specifications for fire tests of building construction and materials—the sponsors for the project were the American Society for Testing Materials, the Fire Protection Group of the American Engineering Standards Committee, and the Bureau of Standards. After numerous meetings there was a complete revision of the existing standards.

In the later tests conducted by the American Society for Testing Materials, as well as in the methods used by the bureau, a factor of safety of 1 1/4 to 1 1/2 was taken on the test results to allow for variations in materials, workmanship and the like. The ultimate time resistance divided by the factor was taken as a safe fire-resistance period that could be applied without modification to given buildings with occupancies estimated to withstand the ravages of fire.

While temperature limits for the unexposed side of constructions subjected to fire tests had been specified in previous standards, no uniform method of measurement had been obtained. Some form of protection had generally been applied over the thermocouples of thermometers to reduce the effect on temperature indication of differences in room temperature and to simulate conditions produced by combustible materials in contact with the unexposed side. During the past two years, the bureau has made considerable tests on brick and hollow tile wall partitions. The results showed a large difference in figures because of inconsistencies in the manufacture of the brick.

The revised specifications have been published by the National Fire Protection Association and the American Society for Testing Materials. The bureau is still considering changes in the standards, and they may possibly publish them later.

CORRESPONDENCE

The Traffic Problem

To the Editor:

Having read your volunteer section for the past two years, it has occurred to me that most volunteer departments are up against a serious traffic problem at the time of a general fire alarm. The experiences we have had in East Aurora in solving this problem may be of some interest.

Our problem was similar to that which is found in any village of about five thousand population. Our department is wholly volunteer. Whenever we had a general fire alarm everyone who owned an automobile seemed to turn out onto the street and drive toward the fire. Under ordinary conditions our traffic is heavy. At the time of fire alarm, congestion is so serious that our apparatus can not get through. Most of our firemen who answer alarms in their own cars were also held up.

We have established two fire lanes, setting aside for this purpose two paved streets. One of these runs through the center of the village lengthwise and one at right angles to it runs the whole distance across town. By proceeding along these lanes it is possible to reach a point within three blocks of any building in town.

We marked the fire lanes at every intersection by signs. The signs are secured to electric light poles by brackets in such a position that they are visible at night. The signs read, "FIRE ROUTE, NO TRAFFIC TEN MINUTES AFTER ALARM." When a general alarm is sounded all traffic must stop or turn off at the nearest intersection, leaving the fire department in full possession of the street for ten minutes. There is a fine of $100 for violation of this ordinance.

Every fireman has a small red sign with word "FIRE", printed on it. While proceeding to a fire he displays this sign on his wind shield. The sign identifies him as a fireman to the police and gives him the privilege of using the fire lanes.

We have three fire stations for our apparatus. All of these stations are either on or within easy reach of the fire lanes.

We have used this method for two years and during that time we have had no delay either to apparatus or to firemen.

Very truly yours,
S. C. PEEK,
Chief of Dep't, East Aurora, N. Y.

London, Ky., to Have New Fire Apparatus—London, Ky., will soon receive its new 400-gallon pumper.

WITH THE EDITOR

Request Let Up in Law Enforcement

It was decidedly a peculiar request that was made to Mayor Walker, of New York City, by the real estate interests that he "let up" in the enforcement of the tenement house laws until such time as the Tenement House Act can be revised, after a report has been submitted by a state commission appointed to investigate the measure. The mayor deserves credit for his very decided stand against any such discrimination in the enforcement of the law.

This request was made by a delegation of prominent real estate men who had met the mayor by appointment and was occasioned by the orders by the administration for the enforcement of the provisions forbidding the use of cooking equipment in more than two apartments of any structure built under hotel specifications. This enforcement, the petitioners claimed, would result in heavy loss to the owners, through the moving away of their tenants. It was acknowledged that, in many of the most pretentious apartment hotels, under the guise of "pantries," there were installed high-power electric cooking facilities in all of the apartments, which is a direct violation of the tenement law.

Aside from the menace of the use of such electrical equipment by persons unskilled, there is no reason why a discrimination should be made by the authorities in favor of any one class of owners, in enforcing the law. The installations were made by the owners with their eyes open and with full knowledge that such equipment in an apartment hotel was in direct violation of the provisions of the act. If one provision of the tenement law is allowed to be side-stepped by anyone, the enforcement of other portions will be equally impossible.

Mayor Walker's stand is both wise and just.

Getting Around the Law

Naturally, as all great disasters do, the Montreal moving picture fire, in which a great number of children lost their lives through panic, caused a more rigid enforcement of the law forbidding minors unaccompanied by parents or guardians, to attend places of public amusement. For instance, in Nassau County, Long Island, New York, the district attorney stationed police at the doors of all theatres and moving picture houses and these officers prevented all children unaccompanied from entering.

This action was productive of a protest from the Long Island Theatre Owners' Association, who claimed that this action on the part of the official cut down their revenue to an appreciable extent. A plan was thereupon devised to "cover" the law. This was for the various theatres to provide at least one matron who should have charge of the children attending without adult guardianship. Where this was done, the policemen were withdrawn from the theatres, and the children were allowed to attend, provided the parents signed a slip turning the children over to the care of the matron during the performance.

The absurdity and danger of this arrangement is manifest. One matron could do little to control a large gathering of children made frantic by an alarm of fire. The plan might succeed if a sufficient number of these women were provided by each theatre to take care of the children, but it is quite certain that this was not in the minds of the theatre owners in suggesting this plan.

It is plainly a subterfuge to get around the law and allow the producers to make money at the risk of the lives of these little ones. There is little excuse for parents, no matter how poor, allowing their children to attend such performances without the presence of parents to protect them from danger. That they are so careless as to do this does not excuse the authorities from allowing it and permitting the theatrical owners to assume a responsibility which they are prepared to sidestep.

The law should be very explicit on this point and should allow no children in places of public amusement except when accompanied by an adult, and this law should be rigidly and impartially enforced, no matter whose pocket it hits. The lives of the children are more precious than the miserably small amount of cash which their nickels bring in to the coffers of the theatre owners.

Avoiding Friction With City Authorities

It is always productive of an uncomfortable if not a serious situation when friction develops between the city or village authorities and the fire department. The fault for such a condition may come from one side or the other, or may be the result of stubbornness on the part of both, but which ever side may be primarily responsible, the municipality itself is usually the principal sufferer by the controversy.

A situation of this kind apparently existed in a small Pennsylvania town, the result of which is a threat by the council to dissolve its two volunteer fire companies and form a fire department under the direct control of the authorities. However, the council is confronted with a difficulty in taking such action, as the companies

are charter organizations and can only be lawfully dissolved by the vote of their members.

A similar condition was commented upon in these columns recently, but in the previous case — that of an Iowa fire company — the council took action, dissolved the company, and assumed control of the fire-fighting forces.

Certainly it would seem that in these and similar cases, where unavoidable friction exists between the constituted authorities of a municipality and its firemen, the only safe alternative is for the government to take over the control of the department and thus insure the safety of the citizens against fire. A fire department at odds with the public authorities would be a serious drag upon the prosperity of the city and the sooner such a situation can be remedied the better for all concerned.

A far wiser plan would be for the council and the department to get together with a desire for mutual understanding, and settle their differences amicably, each party to the controversy approaching the situation with a willingness for concession in the interests of harmony.

But if such harmony is found to be impossible, then it is time for the authorities to act and to assert their prerogative as the representatives of the citizens.

N. Y. Gas Shut-Off Law Held Illegal

The Appellate Division of the Supreme Court has ruled that the gas shut-off ordinance of New York city is unconstitutional on the ground that it violates the Public Service Commission law requiring gas companies to provide safety appliances, and of the provision which prohibits city officials from ordering patented articles except when there is reasonable opportunity for competition.

Justice Merrell said, "It would seem that the installation of gas shut-offs, if efficient in protecting life and property, would be required far more in buildings of less than five stories in height, which would comprise most of the older non-fireproof structures and tenements of the city, than in the more modern fireproof buildings of six stories or more in height."

The city will appeal the case on the ground that the law is valid and is a reasonable requirement.

Taking up the second point involved, the requirement for the use of a high priced patented article in violation of Section 1 1554-A of the Greater New York Charter, Justice Merrell remarked that the plaintiff was included within the provisions of the statute, and said:

"It is to protect against attempts to compel property owners to use patented articles, the price of which is entirely within the control of the patentees, and to compel the adoption and use of patented articles at prices out of all proportion to costs of production. The charter section permits of no such requirements, except there be a fair and reasonable opportunity for competition under conditions prescribed by the Board of Estimate and Apportionment.

"The papers on appeal do not show, and no claim is made, that any action has been taken by the Board of Estimate and Apportionment to prescribe conditions for securing a reasonable opportunity for competition. It is clear that had an opportunity for competition been prescribed, the petitioner would not be compelled to pay $190 for an article which could probably be produced for a small fraction of the price charged therefor."

Byron, Ill., Considers Fire Protection—Byron, Ill., held a meeting to consider the problem of fire protection.

Hoboken, N. J., to Purchase Pumper—Hoboken, N. J., will invite bids early in June for a 1,000-gallon pumper. Chief John J. Gilday also advises that twenty men will be added to the department.

Two Cities Install Fire Alarm Systems

The Gamewell Company, of Newton Upper Falls, Mass., has recently completed two interesting installations of new fire alarm headquarters equipment.

One of these is in Burlington, Vermont, where Chief Carl D. Stockwell is receiving congratulations upon the fine new central fire station that has just been finished.

Operating Room of the New Fire Alarm Central Office in Concord, N. H.

The Burlington equipment includes a 12-circuit C. O. storage board, a 14-circuit protector board, one repeater switchboard for mounting on front of repeater pedestal, one motor generator control panel, one recording set consisting of an Excelsior register, Excelsior time and date stamp with clock, one Peerless take-up reel, one Excelsior transmitter, one fast and slow time transformer, two 120 in., four shelf metal battery racks, and 360 cells F. I. P. battery.

The new fire alarm headquarters in Concord, N. H., contains the following Gamewell apparatus: one 14-circuit C. O. type storage board, one 16-circuit protector board, one 12-circuit automatic repeater, 572 cells F. I. P. battery, two 180 in. metal battery racks, one fast and slow transformer, one recording set consisting of two Excelsior registers, two Peerless take-up reels, one two circuit multiple key, one Cole transmitter, one 180 in. four shelf battery rack, and one motor generator set.

Desk Station in Central Headquarters in Burlington, Vt.

L. to R.: I. W. Arch, Gamewell Company, Chief Carl D. Stockwell and Captain Ashline of the Burlington, Vt., fire department, and F. M. Tiffany, Gamewell Company.

HARRY BELKNAP.

Beaver County, Pa., Firemen to Have Home—The Beaver County Firemen's Association of Pennsylvania has purchased a farm of six and one-quarter acres for a firemen's home and recreation center.

QUESTIONS AND ANSWERS

Conducted by **FRED SHEPPERD, B. Sc., M. E.**

"He that questioneth much shall learn much"—BACON

NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.

Placing Hose Lines

To the Editor:

In your March 23rd issue, "T. G. L." of Larchmont, N. Y., inquired about the stretching of hose from fire to hydrant and vice versa. If I may add to your excellent reply to the inquiry, it might be interesting for him to know how at least two departments of the Far West handle this situation.

For a one piece, triple combination company, it has been found equally good practice to lay the line (Western for "stretch in") either way:—if the hydrant is nearer, catch it; if the fire is first, lay from that. To simplify this second movement, that of laying from the fire to the hydrant, a complete assembly is carried on the rear of the wagon, consisting of nozzle, shut-off, and a double male connection. Hose need not be specially placed in the body, but can be loaded in the usual manner in an undivided body, with the female butt on top, ready for the hydrant, When the hose is pulled off at the fire, the nozzle assembly with the male thread can be attached without delay. The pumper then lays to the hydrant. One of the discharge gates on the engine is always equipped with a double female. The line can be broken and attached to this, also without any more delay than in making an ordinary connection. If two men can be spared to accompany the engine to the hydrant, one can break the line and make this connection while the other is connecting the suction to the hydrant.

I have found by timed drills that it is quicker to lay from the fire to the hydrant when a pumping job is necessary—the engine does not have to make a round trip which is usually seriously interfered with by autos that have followed it. When hydrant pressure only is needed and the engine may be kept at the scene of the fire, it is a few seconds shorter on a medium lay to stretch from the hydrant to the fire. The most important thing to remember when laying FROM the fire, is to pull off enough hose at the fire before the wagon leaves.

Your "Questions and Answers" department is a liberal education in fire-fighting and prevention. The interchange of ideas from all over the country cannot help but raise standards.

Hoping this letter will be of some value to somebody, somewhere, I am,

Yours very truly,
GEORGE H. PLYMPTON,
Ex-Captain, Los Angeles County

False and True

To the Editor:

At your convenience will you kindly answer the following questions in an early issue.

The questions are to be answered "False" or "True."

Question 1. Good fire hose will not mildew or rot if given ordinary fire department care.

Question 2. It is just as important to have the body or outside of the apparatus clean as the mechanical parts.

Respectfully yours,
J. M. A.
Los Angeles, Calif.

Answer 1. True.

Answer 2. False.

Editor's Note. While, in answering questions of this sort, it is not permitted to give any explanation, still the following comments on the second question may prove of interest to our readers and may explain to them the reason for the answer as given. The function of fire apparatus is to get to the fire and operate at the fire. If the mechanical parts of the apparatus are not kept clean there is a likelihood of them failing at the time when they are most needed. The condition of the outside of the apparatus, that is, the body of the apparatus does not exert any influence on the operation of the mechanical parts of the machine. As the mechanical parts of the machine are of greatest concern when it comes to the operation of the apparatus, it is not as important to have the body or outside of the apparatus clean as it is the mechanical parts, which, as noted above, may be put out of commission by permitting them to become gummed up and dirty.

On the other hand some fire departments have issued regulations insisting that the apparatus be clean from one end to the other, inside and out. In this case if the question were asked based on the department rules, it would be answered "True." Not having a knowledge of such rules in this particular department, the question is answered as given above and which on careful analysis, will be found to be correct.

Chemical Tanks vs. Booster Tank

To the Editor:

We have read in various issues of FIRE ENGINEERING that acid soda solutions have very little more value, if any, than water in extinguishing fires. We do not refer, of course, to fires in confined spaces such as small rooms or closets where of course the acid soda solution is undoubtedly superior. In reference to these facts we would like to ask you several questions:

1. Why do large cities and the majority of fire companies continue to use the large acid soda chemical equipment on their trucks when water tanks with a similar capacity and a small pump would give just as good a stream and probably do less damage to the contents of a building? Our volunteer suburban fire company is considering the purchase of new equipment to replace the small chemical truck which we now have and which consists of two 40 gallon acid soda tanks and a hose body. We might state here that we have a large 750 gallon pump, and believe in keeping our chemical unit separate. The water tank with a booster pump would be a great advantage to a volunteer company from the standpoint of cleaning up and re-charging after fires, as we have no paid men to do this work. The Underwriters have informed us that they would give us the same credit for water tanks with booster pump as for acid soda chemical tanks.

2. In your opinion in a suburban community such as ours, composed chiefly of detached frame dwellings with comparatively small commercial centers, which type of apparatus do you believe would be most suitable?

We would appreciate having an early answer from you if you can give us any advice along this line.

E. S. J.
Upper Darby, Pa.

Answer: The first question you ask is hard to answer. The chemical tank when first developed afforded a means of obtaining pressure for the projection of the stream which it supplied. In other words, the reaction of the soda and acid generated a gas which gave the necessary pressure for expelling the fluid.

Having both the fluid and propelling agent in the one unit, the soda and acid chemical engine proved very satisfactory for fighting incipient fires and has still held its position of favor in the fire service.

Where no pumping engine is provided, the chemical engine is indeed a great asset in the extinguishment of fire.

On the other hand, with the development of motor fire apparatus and the equipping of most apparatus with pumping engines, the position held formerly by the chemical tank was weakened. Water is as effective practically as the chemical mixture from the soda and acid tank in extinguishing fire and the only reason the chemical tank is still employed is because it produces a pressure necessary to expel the solution.

Where pumps are available on motor fire trucks the booster tank is possibly a little more desirable than the single chemical tank because a continuous stream of water can be obtained by keeping the tank supplied with water while the pump creates the necessary pressure to give a satisfactory stream.

In answering your second question, we are not familiar with what types of apparatus you have in mind. Also, you do not state if the fire truck you intend buying is to be the sole piece of apparatus in your department.

If it is, a triple combination would probably be the most satisfactory, particularly if provided with the usual ladder equipment placed on such pieces of apparatus.

Fire departments occasionally combine ladder trucks with pumpers having a compartment for hose, but this practice had

not been widely endorsed by fire apparatus engineers and is still in a state of uncertainty as to its status.

As to whether or not chemical tanks should be employed on the triple combination, that is entirely a question of choice. If you do not have chemical equipment then a booster tank is the most essential.

Worcester Lieutenant Promotional Questions

To the Editor:

Below are questions which were given in the examination for lieutenancy in Worcester, Mass., recently. You will do me a great favor by answering these at your earliest convenience.

Question 1. A fire starts on the second floor of a five-story building of second-class construction and has passed up the stairway cutting off the escape of several persons at the fourth and fifth floors. You arrive on a bell alarm and are in charge for 15 minutes. State fully what action you would take until relieved by your superior officer?

Question 2. What instruction would you give the owner or occupant of a building regarding the care of sprinkler system to keep it working properly?

Question 3. You respond to a still alarm in charge of a fire in a tailor shop. After the fire has been extinguished circumstances lead you to believe that the fire was of incendiary origin. State fully what precautions you would take under such circumstances?

Question 4. You are inspecting a building four stories in height of second-class construction occupied as a shoe manufacturing plant where a large number of persons are employed. State in detail what you would look for.

Question 5. What are the fire hazards and what precautions are to be taken while fighting a fire in the following: (a) Warehouse where large number of bales of cotton are stored; (b) cold storage plant?

Cordially yours,
W. A. F.
Worcester, Mass.

Answer 1. It will be assumed that in answer to the bell alarm you will have 3 engine companies and 2 truck companies.

The fact that the fire has cut off the escape of people on the 4th and 5th floors indicates that it has gained considerable headway and threatens to involve the floors above the 2nd floor—the floor on which it is burning with greatest intensity.

The saving of life deserves first attention. In view of the extent of the fire, as well as the fact that life is in danger, additional apparatus will be needed. This is necessary because first efforts must be devoted toward the saving of life and in so doing full efforts cannot be directed toward extinguishing the fire.

The order of operation will be as follows: First transmit call for additional apparatus depending upon the extent of the fire on the second floor. It is likely that a second alarm will be required and possibly a third alarm will also be needed. If the second floor is well involved and fire is gaining hold on the upper floors, transmit second and third alarms without delay.

Send one or two men to the roof at once to open up over stair shaft so as to ventilate the building, drawing the heat and smoke upward and preventing it from mushrooming on the floors on which people are imprisoned. If there is any danger of people jumping, have the life nets ready. Although this is not likely in view of the fact that there is apparently not a great number of people in the building trapped by the fire. If the fire has gained such headway that the lives of those on the 4th and 5th floors are in serious danger, raise ladders at once to these floors and get the people to the street. This work can be done prior to ventilation, if necessary. On the other hand if the fire is not so far advanced that ventilation cannot be done first, this should be done and the ladders raised for rescuing the people afterwards.

The assignment of lines of the three engine companies on the first alarm would be about as follows: First engine company stretch in two lines by way of stairway to second floor. Both of these lines should be assigned toward covering the fire on the second floor and holding it back from the stair shaft. In the event that one of the lines can hold the fire on the second floor, the second line should proceed upward to extinguish fire in the stairwell.

No reference is made to fire escapes, not their availability, but the fact that they have not entered into the problem indicates that they are either not present or else they are out of service, if not inaccessible.

Second engine company send a single line by way of ladder to second floor to drive fire back from stairway and also to operate in extinguishing it.

Third engine company stretch a single line by way of ladder to second or third floor depending upon which point requires the earlier attention. If fire has gained a hold on the third floor the line from the third company should be operated on the third floor as in the second. On the other hand, if fire is being held on the above floors or has made very little headway, then the line from this third engine company may operate in on the fire on the second floor.

By the above assignment of lines and apparatus, you have covered the main points, namely, checking the spread of the fire by properly ventilating and drawing it up through one channel, cover the main body of the fire to the extent of ability of the companies on hand; you have made progress in getting the people safely to the street by raising ladders to the 4th and 5th floors; and you have called additional apparatus as may be needed in getting the fire under control.

Answer 2. The following answer to this question is reprinted from "Question and Answers for Lieutenant and Captain."

Before answering this question it should be remembered a sprinkler system to be effective, must be maintained in a proper working condition at all times. As a matter of fact these systems are very liable to be neglected, partly, no doubt, because their maintenance is not essential to the successful operation of the building. If a sprinkler valve remains closed it does not cripple the building nor the output of the factory, as the case might be, as compared with the domestic service pipe being shut off.

Periodical inspection of the sprinkler system should be recommended to the owner of the building. As to some of the things to be covered in such an inspection, the following list of faults will serve as a guide: sprinkler gate valves closed; sprinkler gate valves partly closed; tanks or reservoirs over 1/3 empty; tanks or reservoirs frozen; steam pumps out of service; rotary pumps out of service; dry pipe system shut off; sprinklers frozen; alarm valve rotary going out of order; alarm valve electric gong out of order.

The closed gate valve is the most important and frequently defect found at inspections. Valves are usually closed for repairs by some employee who forgets to open them and who neglects to notify the manager that they have been closed.

A drip valve test for determining the flow of water is most essential, for it points out a deficiency in supply or a stoppage in the pipes.

Tanks should be examined to see that they are full and contents are not frozen. Dry systems should be examined to see that the air pressure is between the proper limits and that there is no water above the level of the draw-off pipe.

Occasional attention should be paid in inspecting to the condition of the tank and its supports to determine that they are not deteriorating.

Answer 3. Make a thorough inspection to determine precise method by which fire started, making particular note of the presence of such implements as are used by incendiaries. Note the presence of containers which may have been used for transporting inflammables and also determine, if possible, the quantity of such inflammables that may have been on hand at the time the fire occurred. While tailor shops are permitted to have cleaning fluids in limited quantities, excess quantities of these fluids on hand bear considerable significance in connection with incendiary fires. Look for "trailers," candles, excelsior, and other materials employed by incendiaries. Permit no unauthorized person to enter the building. Assign one of your men to guard the premises, and immediately report your findings to your superior officer. While the actual investigational work as to incendiary fires would be done by others than yourself, it is well to be on the alert for any person who may show undue desire to get into the building where a fire has been checked and where there is a liklihood of traces of incendiarism remaining. It is natural that the person setting the fire, if he be present, will be anxious to destroy the evidence or remove it. While such a man cannot be arrested without specific cause, it is most essential that he be scrutinized in order that he may be identified subsequently should he be implicated in a charge of incendiarism.

Answer 4. The shoe industry is an industry in which large numbers of workmen are found per unit of floor area. In fact, in few industries is the working force so congested. The life hazard is severe due to the inflammable nature of materials employed and the congestion of the forces. The first thing to look for in the inspection of shoe factories is proper exit facilities. All passages leading toward escapes or stairways must be clear. Doors leading to such escapes must be unlocked and open outward. Fire escapes must not be blocked by material stored thereon. Location of exits must be distinctly marked by exit signs. Note condition of plant, insofar as storage of materials and rubbish is concerned. See that drying apparatus used in connection with pasted heels and other parts of shoes is properly protected. Note position of scrapings and how such are taken care of. Note the quantity of rubber cement on hand, how

stored, and also look for open lights which, in the presence of such cement, constitute a very severe fire hazard.

Note disposition of cork fillings, how prepared and where stored. Other points which must be covered and which suggest their own hazard are the following: Oil proof, or other compounds using naphtha. Wax cups, how heated. Wood alcohol used: where stored; used for lamps for heating wax or shoe tools. Buffing dust, how disposed of. Wax filling for heels, how heated. Shoe dryers, how heated and arranged. Lampblack, where stored. Polish making: wax heated; turpentine used. Stain or edge blackenings, naphtha used for mixing or thinning. Edge setters, how heated. Shoe tools, how heated. Waste chute: location; construction; doors; discharges where. Cement and oil house: location; distance from factory; construction; method of handling material and bringing it into factory.

Special precautions. General and careless use of naphtha and cement. Care of cutting board scraping and sweepings.

Answer 5. (a) The hazards which are likely to be encountered in a cotton warehouse fire are: The flashing of fire over the entire cotton area (where bales are stored close together), the possibility of fire smouldering within bales which have been afire (fire thought to have been entirely extinguished) and which are apt to burst into flame, hours or even days later; and the excess weight which will be added to the floors due to the absorption of water by the cotton bales.

The above hazards would suggest precautions to be observed when fighting a fire in a cotton warehouse and which might be summed up about as follows: If upon responding to an alarm of fire in a cotton warehouse it is found that but several bales are afire and that fire has not flashed over the entire stock, separate the burning bales from the undamaged ones to prevent this possibility. The burning bales should be thoroughly wet down with a stream of water (employing a small nozzle) and if fire has burned to any great depth in the bales they should be opened up and examined to make sure that all fire has been extinguished. On the other hand, if the fire has gained considerable proportions and spread over a large area of stock which will necessitate the use of great quantities of water to extinguish, care should be observed so as not to overtax the strength of the floors (due to absorption of water by the cotton bales) and thereby endanger the lives of the men operating thereon. Provision should be made to drain the floors at the earliest possible moment and if there exists any doubt as to the strength of the floors, the men should be ordered to operate from ladders through windows or other points where they will be out of danger should any of the floors collapse.

(b) The dangers in a cold storage plant fire include the possibility of explosion of ammonia gas mixed with air; the possibility of ammonia cylinders exploding, and the hazard to life due to the presence of ammonia fumes. It is now an established fact that ammonia gas if mixed with the proper proportions will explode when ignited, and the force of such an explosion is terrific.

Pressure in the ammonia storage tanks may run around 150 pounds per square inch, but as soon as the tanks are heated upon being exposed to fire, the pressure is increased directly with the temperature and if the temperature is raised to 150° Fahr., the pressure might be twice as much in the tank. The possibility of ammonia cylinders exploding when their temperature gets to a high point is always at hand.

Ammonia fumes are well known as one of the dangerous fumes encountered at fires and, where mixed with smoke, sufficient of it might be inhaled before its presence is fully appreciated, to do serious injury to the men.

When smoke becomes impregnated with ammonia fumes, it is highly irritating and generally dangerous. The chief danger is sudden death from edema of the lungs, a rapid swelling of the glottis. The glottis is a valve which is lined with mucous membrane. When a person swallows, this valve closes over the windpipe which keeps food from entering the lungs. When an irritating fume is inhaled, the mucous membrane ,or covering membrane of this valve makes it swell suddenly and shut off the windpipe, causing asphyxiation.

Provide thorough ventilation and use a plentiful supply of water. Water absorbs ammonia gas quickly and in large quantities. Permit no man to go into rooms charged with ammonia unless properly protected with respirators, helmets and other protection.

Extinguishing Effect of Water, Chemical and Acid

To the Editor:

In your Questions and Answers Department please answer the following: In extinguishing fire with a chemical extinguisher, which would have the greater extinguishing qualities, the soda and water alone, or soda, water and acid combined.

If any difference in the above, please state approximately how much.

Respectfully yours,

W. C. H.

Cristobal, Canal Zone.

Answer. There is no appreciable difference in the extinguishing effect of water and soda and water with soda and acid combined. In a chemical fire extinguisher the soda and acid proportions are so balanced that the soda practically neutralizes the acid and the resultant discharge is a neutral solution of water, soda and acid. If soda predominates, there may be a very slight additional effect in extinguishing fire, but it would not be noticeable in actual test. If there is an excess of acid, the excess will be small and will exert no influence whatsoever upon the extinguishing effect of the fluid discharged.

Effect of Ventilation

To the Editor:

In a recent fire examination the following question was asked: Question: What will happen without ventilation? (Room fully charged with smoke.)

Your answer to the above will be greatly appreciated.

Very truly yours,

M. T. G.

Answer. The question would not be hard to answer if you did not make the qualification following it in paranthesis.

Ordinarily without ventilation fire will spread through "mushrooming." The heat rises and, not being able to escape from the building, banks up, extending the fire horizontally.

But where only a room is involved, (as you apparently infer by stating that it is charged with smoke) and in view of the fact that no extent of fire is noted, it would be hard to say just what would happen. Very rarely does fire go out due to being confined in a single room without ventilation. Such things have been known to happen but it is the exception rather than the rule. One thing that is certain, however, is that it would be very hard for firemen to operate on the fire unless ventilation is provided. Where a building is charged with smoke, and fire is burning at some remote point, unless ventilation is provided the men may not be able to reach the point to do effective work on the fire. This latter condition might be said to be the one which would occur if ventilation were not provided.

And if firemen could not operate on the fire the fire would naturally increase in intensity so that it would require strenuous means on the part of the department to hold it.

Maker of Device for Respiration

To the Editor:

On page 1267 of FIRE ENGINEERING for December 10, there is an article entitled "Machine Produces Artificial Respiration." We are very much interested in this subject and are wondering if it is possible for you to furnish us with the name of the company manufacturing this device.

Yours truly,

J. F. M.

Pittsfield, Mass.

Answer: This device is manufactured abroad by the E. Charpin, Ing. Const., 63 Rue de la Folie-Regnault, Paris, France. No doubt you can secure information directly from this party on the costs and manner of distribution.

Optical Illusion

To the Editor:

I notice a photograph in the April 6th issue of a drill tower erected in Murphysboro, Ill. Now I don't know whether there is something wrong with my eyesight or the photograph.

It appears to me that the higher the tower goes the larger the men appear, and if I am right the tower would be only about 6 feet wide. Why are the men so large at the top of the tower and so small at the bottom?

Wishing all the success in the world to your FIRE ENGINEERING, and hoping for a weekly journal a little later on, I am,

Yours respectfully,

B. D. A. Fire Dept.,

Long Beach, Calif.

Answer. It is apparently an optical illusion which gives you an impression that the men are larger at the top of the tower than at the bottom. Possibly the camera was nearer the top of the drill tower, the picture being taken at an elevation. If this were the case, then the men would naturally appear larger at the top of the tower than at the bottom of the tower. The tower itself is apparently not more than 6 feet wide, as you state.

Fire Protection in a Vehicular Tunnel

(*Continued from page* 530)

Traffic signal controls have been placed in each tunnel at intervals of 480 feet. The traffic signal consists also of a word signal "Stop Engine," which can be used in case of emergency; and likewise a flashing signal which will indicate to the traffic officer the necessity of bringing traffic into one line so that the emergency truck can enter the tunnel in the other line.

Traffic control stations have been placed every 480 feet, with repeat signals midway between. The traffic control stations consist of two buttons; one of these buttons will set all signals against traffic between the traffic control station where the signal is given and the tunnel entrance; it will also give a record in the central control station of the traffic signal set. These traffic signals may be cleared by the central control operator or by the policeman in the tunnel. In case the signals are set against traffic simultaneously at two points in the tunnel, it will be impossible for the operator at the station furtherest from the tunnel entrance to clear signals back of the other point where the signal has been set. The signals normally will be operated from the lighting circuit but an emergency connection to the storage battery is to be provided.

Fire-Fighting Apparatus

The fire fighting apparatus for the tubes will be a combination fire engine and wrecking truck, one for each tube. The trucks are now being built by the Commercial Truck Company of Philadelphia, Pa., and they will cost $17,000 each. The trucks will be located in quarters on opposite sides of the river near the exit ramps. They will be electrically operated and will have double steering apparatus or fifth wheels, as it will not be possible to turn them about in the tunnel. One end must be locked at all times, and that end will be the rear end, if the front end is to be used for steering.

The trucks weigh ten tons and each will have two five ton cranes which can be folded or bent into and under the body and out of the way. Each truck will carry two portable "dollys" which can be slipped under a wreck and supply the necessary traction to cart derelict out of the tunnel.

The trucks will have one 30′ extension ladder, one 16′ ladder, 200′ of 2½″ hose, hooks, axes, jacks, a 200 gallon tank of water, 200 pounds of dry foamite, with 50 pounds of it in the magazine to mix with the water for instantaneous use. Each truck is capable of supplying 1,600 gallons of fire foam which can be delivered by a special generator supplied from the motor of the truck. There will be on each truck six "Fire Gun" extinguishers, and a 100 gallon pump to supply water from the standpipe system for additional generation of fire foam.

Each truck will carry two (one gallon) cans of gasoline for the benefit of that element of the motor driving public that forgets to keep the gas tank sufficiently supplied with fuel. In addition, each truck will have an inhalator, a first aid kit, rubber coats, rubber boots, rubber gloves and fire hats for eight men, it being the purpose to utilize the policemen in the tubes by pressing them into fire service. The trucks will have four portable searchlights. There will also be on each truck 14 tarpaulins 20′ x 14′ to cover other vehicles to protect them from blistering or catching fire.

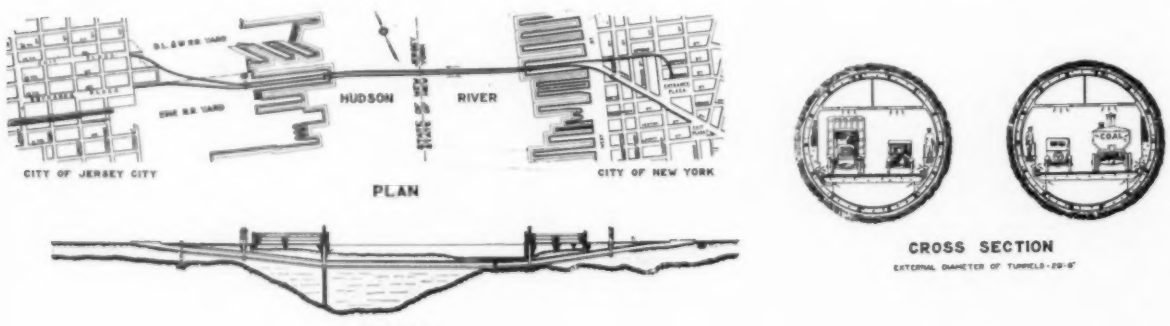
Procedure in Case of Fire

When a fire or an emergency signal is recorded in the central office of the tunnel, it will register on both the New York and the New Jersey sides. If the signal comes from the New Jersey bound tube, the emergency truck on the New Jersey side will respond with two men, picking up on the way five or six firepolicemen. The response will be against traffic; the reason being this: A fire or other emergency signal will automatically stop all vehicles behind the vehicle in trouble. The vehicles ahead will continue on, leaving at least one end of the trouble point open and clear for operations of the emergency crew and truck. This will also facilitate the removal of the car afire by simply slinging it up under the crane of the emergency truck which will reverse its engine and out of the tube will go the emergency truck and its burden.

Consideration is now being given to the subject of notifying the fire departments of New York City and Jersey City when there is a fire in the tunnels. The push buttons in the tunnels are a summons for the wrecking truck as much as they are calls for the fire fighting equipment, therefore, the problem of differentiating between a fire call and a wrecking call is at present under discussion, and in all probability will be the subject of further conferences.

Lack of Cooperation with City Fire Departments

Unfortunately there does not seem to have been much if any mutual understanding between the tunnel authority and the responsible fire officers of New York and Jersey City. Tunnel engineers tell me that they have not ignored the Fire Departments, that plans and blue prints of the tunnel construction as developed were supplied to the Fire Departments but that nothing came of them, excepting a survey made by an inspector of the New York Bureau of Fire Prevention in January, 1926. This fire prevention inspector made a short report to the Chief of the Bureau of Fire Prevention. As far as the office of the Chief of the New York Fire Department is concerned, there is little, if any information on record about the tunnel, from a fire protection and fire fighting standpoint.



Plan, Profile and Cross-Section of the Holland Hudson River Vehicular Tunnel

It is not intended by the tunnel engineers to have fire apparatus enter the tunnel, for to do so would mean that they will have to travel completely through the tube in order to get out. Firemen for their man-power are welcome, they say, but the apparatus will be of no use in the tube.

Tunnel engineers deprecate very much what they term "an unfortunate impression" at Fire Headquarters that they wish to go along without the advice and counsel of the fire department. "We don't think that we know it all by a long shot" said a tunnel engineer to the writer, "but our efforts to sit down and talk things over with the fire department have to be fruitful. We want their cooperation and the benefit of their experience, but this is an innovation, it is underground and it presents something entirely different from what the fire department has been accustomed to handling."

The attitude at Fire Headquarters is that the tunnel engineers have gone along independently and have assumed an atmosphere of indifference toward the legally constituted authority charged with the responsibility of protecting life and property. Tunnel engineers decry this view and say it is not so.

Which of these two versions is the correct one remains to be answered when both sides eventually come together, as they no doubt will. One is municipal and the other inter-state and there probably is the breach. Fire officers in New York who know that it will be their lot to meet and treat with some unforseen "situation" in the tunnel, when and if it arises, declare that they should at least be made acquainted well in advance of the open-

ing of the tunnel with the problems and conditions with which they have thus far had no opportunity to study and treat with.

Understanding in Sight

That the fire department and the tunnel commission's engineers will eventually get down to some semblance of cooperation and understanding was manifested this past week when Chief Valentine Fendrich of the bureau of fire alarm telegraph, F. D. N. Y., called on the electrical engineer of the tunnel with a view to obtaining a plan of the fire alarm layout of the tunnel, in order to study the best method of tieing in with the fire department. It might be determined to have a special building alarm box in the central control office of the tunnel. This box could then be pulled in case of fire which the central control operator of the tunnel would know about. Such a box would have a terminal number in conjunction with the nearest street corner alarm box. The terminal number would indicate that the alarm was specifically for a fire in the tunnel. No doubt this will be done, as it is now done for fires on the bridges over the East River and similar public utilities, such as hospitals, asylums, schools, theatres, prisons, etc.

It is planned during the month of June to hold several additional tests of the ventilation of the tubes. Thus far two tests have been held, but these were confined to a restricted area and without the complete ventilating machinery in operation. It is purposed to have smoke bombs or smoke pots set off and the result noted, while the ventilating apparatus is in full service. No doubt the fire department officials will be asked to observe these tests.

GOVERNING STORING AND HANDLING OF EXPLOSIVES BY ORDINANCE

Some Suggestions Contained in the Laws of Oakland, Cal.—Safeguarding Measures Afford Safety to Communities

By BATTALION CHIEF FRANK C. KISPERT
Fire Prevention Bureau, Oakland, Cal.*

AT this time, with the disaster at the Lake Denmark Naval Ammunition Depot, in New Jersey, in which explosions of munitions of war caused a heavy loss of life and property damage of some $100,000,000, fresh in mind, the subject of the storing of explosives is a pertinent one with fire chiefs. The following paper will, therefore, be of especial interest:

Handling and storing explosives in excessive amounts, as used by the government and the industries manufacturing them, may well be left to experts on the subject as it is quite extensive in scope and justice could not be done to the subject in a paper of this length.

For the benefit of communities having no particular ordinances or rulings on explosives, I am submitting a few suggestive ordinances on the storage of various well-known and used explosives as we handle them in Oakland. These particular sections of Ordinance control explosives in transit by rail or water, within the city limits, insofar as they do not conflict with the Interstate Commerce Commission, and all explosives handled, within the city limits, by firms or individuals.

Following are sections of ordinance appertaining to explosives operative in Oakland.

Section 4 (c). No person or persons, firm, company, or corporation shall manufacture or cause to be manufactured or bring or cause to be brought into, or receive or keep or store, or suffer to remain within the limits of the City of Oakland, any blasting powder, hercules or giant powder, nitro-glycerine, daulin, dynamite or other explosives, liquid or material, or compound, having an explosive power greater than that of ordinary gunpowder, without first obtaining a permit so to do from the City Council. All such storage shall be subject to the approval of the Fire Marshal of the City of Oakland.

Section 4 (d). No blasting powder, hercules or giant powder, nitro-glycerine, daulin, dynamite, or an other explosive liquid or material, or compound, having an explosive power greater than that of ordinary gunpowder, shall be kept or stored within 500 feet of any dwelling house or place of business within the limits of the City of Oakland. Provided, that this section shall not apply to the freight terminals and yards in said City of steam railroad corporations subject to the jurisdiction of the Railroad Commission of the State of California, who receive or deliver freight within such terminal or yards, when the explosives received for shipment or held for delivery in such terminals or yards are in less than carload lots.

Section 4 (e). No person shall convey or cause to be conveyed from one place to another in the City of Oakland, any liquid nitro-glycerine; and no person or persons, firm, company or corporation shall manufacture or cause to be manufactured any liquid nitro-glycerine within the limits of the City of Oakland, and no liquid nitro-glycerine shall be kept or stored, in, or about or on any premises or street, within the limits of the City of Oakland.

Section 4 (f). No person or persons, firm, company or corporation shall receive, keep or store, or cause to be received, kept or stored, or aid or assist any person in receiving, keeping or storing gunpowder in a larger quantity than 10 pounds, into or in any building or upon any premises within the City of Oakland, except while within the custody of a steam railroad carrier subject to the jurisdiction of the Railroad Commission of the State of California, and in its freight terminal yards, awaiting shipment by it, or pending delivery to a consignee, and except as hereinafter provided.

Section 4 (g). Any person or persons, firm, company or corporation, keeping or storing more than 10 pounds of gunpowder, shall keep the same in an air-tight metallic vessel; said vessel shall be marked with the words "gunpowder—dangerous" in plain letters, painted in white on a dark ground, not less than three inches in height; said vessel shall be kept at all times in view near the entrance of the premises where kept, so as to be easily removed; said vessel shall contain not more than 50 pounds of gunpowder.

Section 4 (h). No person or persons, firm or corporation shall keep or store, or cause to be kept or stored, or aid or assist any person in receiving, keeping or storing more than 50 pounds of gunpowder in the City of Oakland, except within the freight terminals and yards in said City of steam railroad corporations subject to the jurisdiction of the Railroad Commission of the State of California, and receiving or delivering freight within such terminals or yards, when the explosives received for shipment or held for delivery in such terminals or yards are in less than carload lots.

Section 4 (i). No person or persons, firm, company or corporation shall convey or cause to be conveyed or assist in conveying, in any vehicle or otherwise any gunpowder, unless the same shall be securely packed in air-tight metallic packages; said packages shall be securely covered while in the vehicle.

Section 4 (j). No person or persons, firm, company or corporation shall discharge gunpowder from any vessel, except from the vessel's side and before the said vessel shall have been hauled up to the wharf.

No vessel shall be permitted to remain at any wharf within the limits of the City of Oakland, more than 24 hours after receiving gunpowder on board; and if the vessel shall lie at the wharf over night, a watchman shall be kept on duty on board said vessel all night.

Section 4 (k). All gunpowder deposited on the wharf for shipment shall be immediately passed on board the vessel which is to receive the same.

All gunpowder landed or placed on any sidewalk, street or public way for forwarding or shipment, shall be forwarded or shipped immediately after it shall have been so landed or placed.

Section 4 (l). It shall be unlawful for any vessel to lie at any wharf, pier or bulkhead, with gunpowder on board, unless such vessel will be afloat at low tide.

Section 4 (m). No person or persons, firm, company, corporation or association shall receive, keep or store, or have in any one place, more than 50 pounds of gunpowder, or shall erect or maintain any building for the storage or keeping of gunpowder, or for the manufacture of or storage of fireworks, within the limits of the City of Oakland, except at a place and in a building approved by the Fire Marshal of the City of Oakland.

Section 5. No explosive or inflammable compound or combustible material of any kind shall be kept, stored, placed or used near any doorway or stairway of any building, in such place or manner as to obstruct or render egress hazardous in case of fire.

Section 5 (a). No person or persons, firm, company, corporation, or association, shall at any time fire or discharge, or cause to be fired or discharged any gun, anvil, cannon, rifle, pistol, toy pistol, or firearm of any kind, or fire or explode, or cause to be fired or exploded, any blank cartridge, bomb, rocket, firecracker, Roman candle, squib, colored fire, torpedo, mine, torch, or any combustible or explosive device, or preparation, or fireworks, or firecrackers of any kind whatsoever, or by whatever name known, within the City Limits of the City of Oakland, provided, that the use of fireworks at such public displays of fireworks inside the limits of the City of Oakland, as may be given with the joint written consent, first had and obtained, of the Chief of the Fire Department and the Chief of Police of said city, shall not be unlawful.

Section 5 (c). No person or persons, firm, company, corporation or association shall sell or offer for sale, or have in his, or their possession, or custody, any of the articles specified hereinabove in section 5 (a) of this ordinance, or any other combustible or explosive device, or preparation, or fireworks, or firecrackers, of any kind whatsoever, or by whatever name known, or any article for the making of pyrotechnical display within the limits of the City of Oakland. Provided: that the manufacturer of fireworks may store or sell fireworks for use outside the limits of the City of Oakland, at a place, or in a building, approved by the Fire Marshal of the City of Oakland, together with the joint written consent of the Chief of the Fire Department and the Chief of Police of the said City of Oakland.

Provided, further, that the custody or possession or transportation of fireworks within the limits of the City of Oakland for use at a public display of said fireworks inside the limits of said City, given with the joint written consent of the Chief of the Fire Department, and the Chief of Police of said City shall not be unlawful.

(To be continued)

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* From a paper read before the annual convention of the Pacific Coast Association of Fire Chiefs at Fresno, Cal.

FIRE SWEEPS THRU BUILDING IN 4-ALARM PITTSBURGH BLAZE

Many of the New Pieces of Apparatus Used in Fire—Emergency Squad Does Effective Work —Buildings Burn for Almost Nine Hours

By WILLIAM E. PATTERSON,
Bureau of Fire, Pittsburgh, Pa.

FIRE swept the three top floors of a double eight-story brick warehouse, located at 317 and 319 First Avenue, in the downtown business district of Pittsburgh, Pa., on April 16. It gave the firemen a hard two-hour battle and caused a loss of more than $100,000 before it was brought under control.

The fire started from some unknown cause, originated probably on the sixth floor of the building at 317 First Avenue; it had made considerable headway when discovered and was rapidly spreading to the upper floors when the first company arrived.

Firemen of the first alarm companies making their way into the building and up the stairway to the seat of the fire with their lines of hose, found their attempt to attack the fire from the inside of the building in vain, when the fuse links connected to the fire doors on the enclosed stair case at the fifth floor burned through, dropping the doors down over the stair opening and stopping further progress of the firemen to the upper floors of the building.

Fifteen engine companies, one emergency squad company, three truck companies and one water tower company, called on the four alarms were required in subduing and bringing the fire under control.

Approximately 267 uniformed firemen, consisting of the following classifications, were on duty at the fire, both the night and day shifts or platoons, due to change of turns at 8:00 a. m. They remained on duty and worked hard until about 10:00 a. m. without any direct orders being issued to them by the Chief Officers in charge.

The force included the chief of department, two deputy chiefs, eight battalion chiefs, thirty-eight captains, twenty-eight pumpmen, two enginemen, two assistant enginemen, twelve drivers, one hundred and thirty-seven hosemen, twenty-one laddermen, twelve chiefs aides and four fuel truck drivers.

Twenty-four pieces of fire apparatus, all motor driven and tractor drawn, of the following makes and types were in service at the fire.

One Ahrens-Fox, 1,000-gallon pumper; seven American-LaFrance, type 12 1,000-gallon pumpers; six American-LaFrance, 750-gallon pumpers; one 700-gallon Metropolitan steam fire engine drawn by an American-LaFrance, two-wheel front drive tractor; one Deluge combination hose, turrett and water tower wagon, drawn by an American-LaFrance, two-wheel front drive tractor; one American-LaFrance, hose and turrett wagon; one Hale, hose and turrett wagon; one American-LaFrance, hose and chemical wagon; one American-LaFrance, 85-foot, aerial truck; one seagrave 85 aerial ladder, drawn by an American-LaFrance four-wheel tractor; one American-LaFrance, 75-foot tractor drawn aerial truck; one American-LaFrance, emergency squad wagon and one sixty-five foot Champion water tower.

Of the above apparatus in service at the fire, eleven pieces consisiting of six 1,000-gallon (new Metropolitan type) triple combination gasoline pumpers, three 750-gallon triple combination gasoline pumpers, one 85-foot tractor drawn aerial truck and the emergency squad wagon were all new American-LaFrance apparatus just recently installed out of a total of thirty new pieces now being delivered by that company.

One of the outstanding features, was the efficient service performed by the new Emergency Squad Company No. 1. This company was just put in service April 16th, and is the first of its kind to be installed in Pittsburgh. Upon their arrival at the fire, the new company performed most efficient and excellent service with their water-proof salvage covers.

The firemen, under the direction of Chief Richard L. Smith and his officers, fought the fire in an efficient manner from all sides, and from the roofs of adjoining structures.

The fire was fought from the First Avenue end of the building by several high-powered fire streams. Here the fire was at its worst.

First Avenue, which is a narrow thoroughfare, only forty feet wide, was somewhat of a hinderance to the fire department; it prevented the firemen from getting the large deluge wagon back far enough to get a proper angle for the deluge streams. Flames raging out through the front windows, chipped pieces of stone off the building by the intense heat, and pieces of the heavy copper cornice. Work of the firemen in front of the building became dangerous. The 85-foot aerial ladder of Truck No. 1 which was extended in front of the burning building had

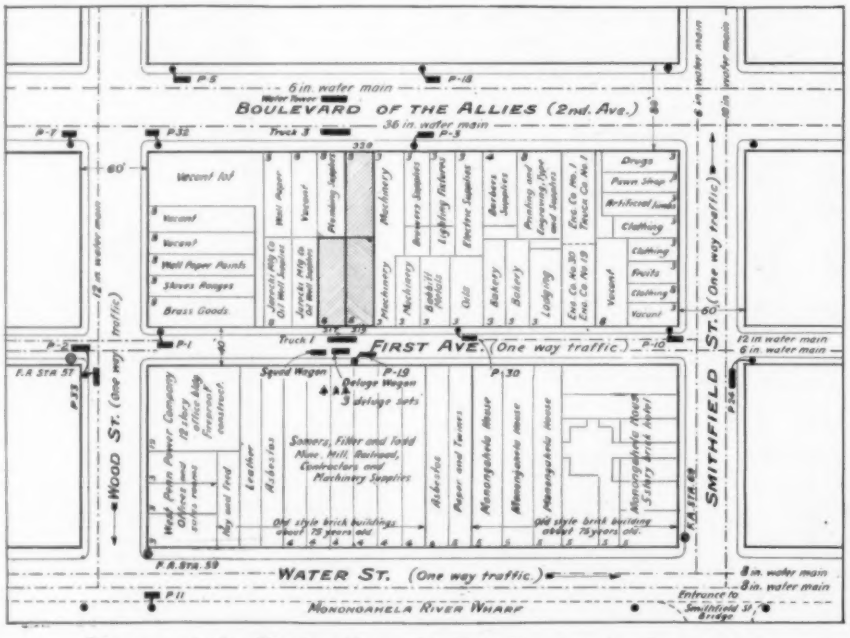


Diagram of the District About the Fire Showing the Occupancies

about seven-feet of the extreme end of the fly ladder badly burned and charred by the sudden rush of flames from the windows of the top floors. A Baker cellar pipe on the truck was badly damaged by a falling piece of stone as were a number of smaller ladders. As soon as the fire on the upper floors was cooled down enough by the powerful deluge streams, firemen, by means of the aerial ladders, got in on the upper floors with their lines of hose.

The burned building was a modern eight-story brick structure of the slow burning type of construction, with an ornamental brick, stone and terra cotta front, facing twenty-five feet on First Avenue, and extending back a distance of eighty feet, half way through the block, where it butted up against an eight-story brick building of similar type and construction.

The fire burned for almost nine hours.

Two more views of this fire are shown on the following page.

New Chief for Shelby, N. C.—E. B. Roach will be head of the fire department of Shelby, N. C., when the new city administration will go into office in June.

Some of the Sales Made by W. S. Nott Co.—The recent sales of the W. S. Nott Company are as follows: Leveland, Tex., International Falls, Minn., Arlington, Minn., Knoxville, Ia., and Cuba City, Wis.

New Chief for Charlotte, N. C.—After ten years of service as chief of the fire department in Charlotte, N. C., Chief M. M. Wallace has been relieved of duty as the result of a political shake-up in the new city administration. Hendrix Palmer, assistant chief, has been advanced to chief. The number affected as the result of the upheaval has been unusually light, for many saw the turn of events and resigned in time to escape the political axe.

FIRE DESTROYS SCHOOL, GARAGE AND FIRE STATION IN WESTERLY

Neighboring Departments Help—Town Without Fire Protection—Fireman Has Skull Fractured by Unruly Nozzle on Fire Line

WESTERLY, R. I., a town near the border line of Connecticutt, was visited by a fire which is believed to be the worst in the history of the town. It resulted in a $225,000 damage. Chief George E. Egger of the Westerly department was in command at the fire, but officers from nearby cities responded with men and equipment. Francis J. McMahan, chief of Pawtucket, R. I., rendered valuable assistance.

While the fire was at its height, the town was without electric lights and telephone service.

The town took immediate steps after the fire to provide means for fire protection, as most of the valuable equipment was destroyed when the fire station was razed.

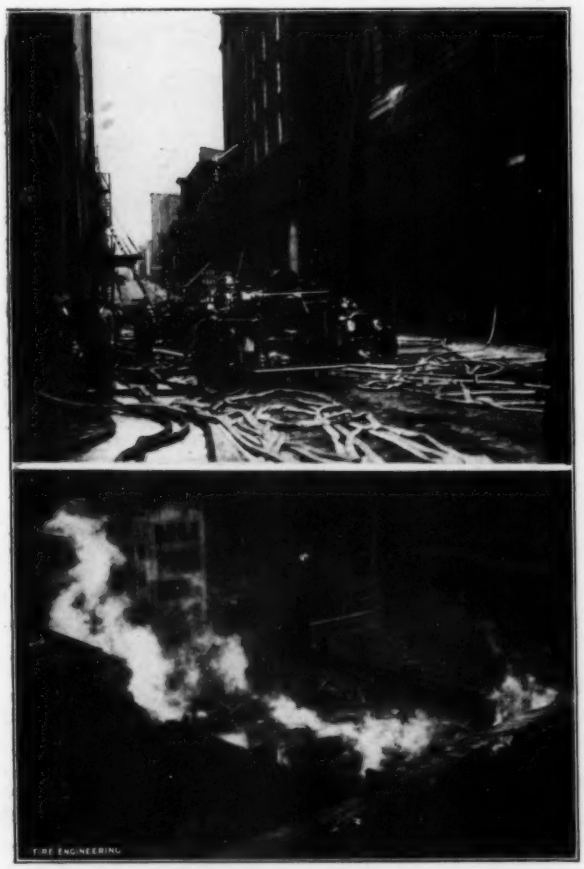
Several firemen were injured during the course of the fire. One received a fractured skull from a nozzle on a hose line that broke away from the man holding it. The fire started in the fire station and spread to the town hall. The court and other valuable records were removed before any damage was done to them. Only one piece of apparatus escaped; 2,000 feet of hose were destroyed by the fire and Westerly depended entirely on outside protection.

When the fire spread to the garage, there was sufficient time to remove thirty cars. Valuable machinery was lost in the industrial school fire.

When the New London company returned after the fire was out, they left the 1,200 feet of hose and other equipment for the local company to use until they had an opportunity to purchase equipment to replace that which had been destroyed.

Steps have been taken to construct a new fire station and to refurnish the fire companies.

Upper—Remains of the Westerly Garage. Lower—View of District and Ruins of Fire Station



Pittsburgh Fights 4-Alarm Fire

Upper—Looking Down First Ave., Near the Fire. Lower—View of the burned roof taken from one of the buildings across the street. See previous page for account of this fire.

Massachusetts Chiefs' Club Meets

The annual meeting of the Fire Chiefs' Club of Massachusetts was held at the Elks Hotel, Boston, on Wednesday, May 18, at 12:30 p. m. The principal business was the election of officers.

Chief Patrick J. Hurley of Holyoke, was given the honor of re-election as President.

A. Howard Fiske of Framingham, who had held the office of Secretary and Treasurer since December, 1920, was nominated for re-election but he declined to serve another year, stating that owing to changes in his business relations he could not properly attend to the duties of the office.

The following officers were elected for the ensuing year:

President, Chief Patrick J. Hurley of Holyoke, Mass.
First Vice President, Chief Selden R. Allen, Brookline, Mass.
Second Vice President, Chief Alfred L. Mead, Quincy, Mass.
Board of Directors—Chief Charles L. McCarthy, Worcester, Mass.; Chief Frank E. Tracey, Wobourn, Mass.; Chief Thomas H. Mahoney, Westfield, Mass.; Ex-Chief John E. Sullivan, Plymouth, Mass.; and Ex-Chief H. Howard Upham, Needham, Mass.
Sergeant-at-Arms—Ex-Chief Frank O. Whitmarsh, Braintree, Mass.
Secretary and Treasurer—Chief William H. Hill, Belmont, Mass.
Auditing Committee—Chief Daniel B. Tierney, Arlington, Mass.; Chief Thomas A. Qualey, Medford, Mass.; and Chief David De Courcey, Winchester, Mass.

In the matter of ladies the one day in the year devoted to the entertainment of the ladies of the club and designated as "Ladies Day," all arrangements were left with the board of directors with full power. The usual Summer vacation will be observed, the club having adjourned to the third Wednesday in October next.

HARRY BELKNAP.

Marathon, Ia., to Install Siren—A tower is being erected on which to install a new siren.

Sterling Sells Many Sirens—The sales made by the Sterling Siren Fire Alarm Company for the Sterling Code Sirens include those sent to Seaside Heights, N. J., Cartaret, N. J., and West Caldwell, N. J. A siren has been installed in Valhalla, New York

WHAT'S BURNING

THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.

Week Ending May 20

CHARLESTON, MO.—American Theatre destroyed..... 80
ONAWA, IOWA.—Five business bldgs. destroyed..... 25
DETROIT, MICH.—Siegel Store, 11707 Jefferson Avenue..... 25
JELLICO, TENN.—Two warehouses, Campbell Knitting Mills.. 180
PLAINS, KANS.—Bldg. of Richardson Motor Co..... 45
KINSTON, N. C.—Business bldg. owned by Mrs. Hines..... 35
LA GRANDE, WASH.—Plant of American Nitrogen Products Co..... 250
BIRMINGHAM, ALA.—Bldg. of Blanksop Motor Co..... 55
HOUSTON, TEX.—Warehouse of Seaport Bag Co..... 80
JACKSON, CALIF.—Strohm factory destroyed..... 25
WILMINGTON, DEL.—J. Bradford Co. store and adj. prop.. 80
STILLWATER, OKLA.—Briggs lumber yard, Bullen Motor Co.. 25
JUNCTION, TEX.—Business establishments..... 40
RIDGEFIELD, WASH.—Three school bldgs. destroyed..... 60
DALLAS, TEX.—Lindley Sanitarium, Oak Cliff..... 40
SUMTER, S. C.—Monaghan Block damaged..... 75
YBOR CITY, FLA.—Post office damaged..... 25
VALDOSTA, GA.—Property of Dixon Contracting Co..... 80
ESSINGTON, PA.—Boat houses, Phila. Yacht Club..... 25
CHICAGO, ILL.—Plant of Greenlee Foundry Co..... 40
LOCKPORT, N. Y.—Plymouth Congregational Church damaged. 25
PUYALLUP, WASH.—High School Bldg. destroyed..... 140
PHILADELPHIA, PA.—Plant of C. B. Lenning Co., Frankfort. 250
DUBLIN, GA.—50 houses in negro district..... 35
BRECKENRIDGE, TEX.—Business bldgs. damaged..... 25
SIOUX CITY, IA.—Plant of Floyd Valley Mfg. Co..... 25
FORT COBBS, OKLA.—3 business bldgs. destroyed..... 40
LANCASTER, PENNA.—Store of Keystone Furniture Co..... 40
DELAVAN, WISC.—Mill of Jacob Hetzel..... 80
SAULT STE MARIE, MICH.—Bldgs. Wm. Horner Co..... 80
ELIZABETH, PA.—Garage of A. G. Rothey destroyed..... 100

Week Ending May 27

DETROIT LAKES, MINN.—McCarthy Hotel & adj. property.. 70
CLARKS, LA.—Plant, Louisiana Central Lumber Co..... 800
BOSTON, MASS.—Coldwell Bldg. damaged..... 25
FERNANDINA, FLA.—S. Atlantic Canning Co. plant..... 40
WHITEHALL, MONT.—Community School bldg. destroyed.... 60
GREENVILLE, PA.—Greenville Hall, Thiel College..... 25
FERNWOOD, PA.—Rustic Apt. building damaged..... 25
GIBSON, N. C.—Negro tenements destroyed..... 40
CALVARY, QUE.—Warehouse of D. H. Bain Co..... 30
JACKSONVILLE, FLA.—Warehouse and plant of Price Bros.. 25
RICHMOND, KY.—Stockyard bldgs. of A. McKnight..... 30
JOPLIN, MO.—Elevator of Boyd-Pate Grain & Milling Co.... 40
SIOUX CITY, IA.—Albright Batter Shop & adj. property.... 40
NEWBERRY, MICH.—Plant of Wm. Horner company..... 80
LINCOLN, CAL.—Elevator of Lincoln Grain Growers, Inc..... 50
HOLLY HILL, FLA.—Home of H. S. Wilder destroyed..... 30
GUARDVILLE, PA.—Breaker, Hazelbrook Coal Co..... 250
KANKAKEE, ILL.—Stove works plant of Sears-Roebuck Co.. 80
LAWRENCE, MASS.—Tenement block owned by Alfred Korey.. 65
JACKSONVILLE, FLA.—Sunset Club cabaret..... 30
LANSDALE, PA.—Plant No. 2 Franklin Pottery Co..... 25
MONTREAL, QUE.—Bldgs. of Maisonneauve Quarry Co..... 250
SALUDA, N. C.—Plant of Saluda Towel Company..... 30
BROOKFIELD, MO.—Methodist Church and parsonage..... 80
FORT COBB, TEX.—Property of Mrs. Thos. Kearse..... 40
CHICAGO, ILL.—H. R. Gibbibs bix factory destroyed..... 80
MASON CITY, IA.—Alexandria Billiard Parlors destroyed..... 30
HYANNIS PORT, MASS.—Residence of Mrs. F. F. Cutler..... 35
MIAMI, ARIZ.—Trestle of Southern Pacific R. R..... 40
ELYRIA, OHIO.—Barn of Arthur Sanders destroyed..... 25
MORGANTOWN, W. VA.—Two tanks of Pure Oil Co. destroyed 300
HOPEVILLE, GA.—Mill of Evans-Inman Lumber Co. 50
PENCE, IND.—Crane elevator destroyed..... 25
EAST WINDHAM, N. Y.—Barrymore Hotel damaged..... 60
WARREN, OHIO.—Braden Block destroyed..... 125
RICHMOND, VA.—Furniture store of J. E. Trevillian..... 30
CYGNET, OHIO.—Oil tank of Buckeye Pipe Line Co..... 40

Firemen Injured in New Jersey Fire

Explosions started a fire in the Universal Feed and Milling Company in West New York, N. J., that caused a $500,000 damage and injured four firemen besides tying up traffic on the West Shore Railroad.

Three tugs of the New York Central Railroad, and the New York fire boat "Thomas Willard" fought the fire from the water front while fire companies from West New York, Guttenberg and Union City directed high pressure fire streams from the land side of the fire.

Five hours after the fire had started, the south wall of a two-story power house connecting the main building with an unused structure collapsed and injured four firemen. The building was formerly used by Lever Brothers, manufacturers of "Gold Dust" and it was thoroughly soaked with linseed and other oils used in soap manufacture.

The fire was first discovered by watchmen of the West Shore Railroad and they turned in an alarm to West New York.

Four Firemen Were Injured When the Wall Shown Falling in Photograph, Collapsed.

A second alarm followed and calls were sent for aid to nearby departments. While the fire was being fought, a fire in a celluloid factory was reported, and one company was permitted to leave.

Photo by W. W. Stevenson

Grain Elevator Destroyed in Cairo, Ill.

A grain elevator, 185 feet high, erected, twenty years ago in Cairo, Ill., was destroyed by fire. The elevator was constructed of wood but it had sprinkler protection. When the fire department arrived the entire structure was in flames. The cause of the blaze was unknown and the fire burned six hours before it was under control. One 750-gallon American-LaFrance pumper and one Robinson 1,000-gallon pumper were used. The combined loss of building and the contents of oats and wheat was estimated at $300,000.

Supreme Court Considers Sioux City Case—The wage increase case of the Sioux City, Ia., firemen is under advisement by the Iowa Supreme Court.

Pittsburgh Awards Large Equipment Order—A large order for miscellaneous equipment has been awarded by Pittsburgh, Pa., to the American-LaFrance. It includes orders for a variety of supplies such as goggles, lanterns, turret pipes and so forth.

Hydrant Blows Up During Apparatus Test—While testing a fire apparatus in Fort Madison, Ia., a hydrant from which the pumper was obtaining water, blew up about twelve feet in the air. Incidentally, the pumper test bore out the Mayor's contention that the 4-inch hydrants will have to be replaced with those of larger size.

COURSE OF INSTRUCTION IN FIRE PROTECTION

AS GIVEN AT THE UNIVERSITY OF ILLINOIS

WATERWORKS AND PIPING

By CLARENCE GOLDSMITH

Assistant Chief Engineer, National Board of Fire Underwriters, Chicago, Ill.

IN this thirty-sixth and concluding installment of the University of Illinois Course in Fire Prevention, Mr. Goldsmith gives some important hints as to the cooperation between the fire and water departments, and the maintenance of hydrants and valves:

The Need for Pumpers

Where you have a pumper you can perform lots more efficient work. You may have sixty pounds pressure in your mercantile district and say you have a 350-gallon pumper. I would not buy a hose wagon without a pump of at least 350 gallons capacity, although I might have sixty or seventy pounds pressure, for there is always some place where the pressure does not hold up and you will need that pump to give one good stream. When you get on the end of a four-inch main, suppose you can get only 180 gallons of water, put your pumper on, and select your nozzle with a three-quarter inch or seven-eighths inch tip so you will get a good stiff stream. We are going to show you later how you can utilize such small quantities of water and develop one good stream.

In a city south of the Ohio river last year the mayor got into a considerable discussion about a loss they had on the edge of town. They had two pumpers each of 350-gallons capacity. I got them to lay out the hose as it was laid out at the time of the fire, and they were not able to throw water over the sill of the window on the first floor of the brick building destroyed. We found out how much water we could get from the hydrant, we put on the proper nozzles, and got two very nice streams. The mayor was very much surprised. The chief was a new appointee, and at previous fires he had been able to get fair streams direct from hydrants, but it just happened at this place it could not be done.

Firemen Should Study Distribution System

You men ought to study the water distribution system. Where you have a volunteer department, if you practice, go to some of the weak places and find whether you can get one good stream or two good streams, or if you cannot get any at all. Find out what you can do with your pumper and what size nozzle to use.

We talk about the hydraulics of fire streams, and it is very true we can make some close calculations on the pressure and quantity of water discharged through hose lines, but fire-fighting, as yet, is not an exact science. In actual practice we don't know within ten per cent of how much water we need to extinguish fire in any given building, and we cannot tell the friction loss in the hose lines within a few pounds, but you can make rough estimates of the pressure you ought to carry at the pumper to get moderately efficient fire streams. It does not make much difference whether you get sixty or seventy pounds on an outside line, and you don't want as much on an inside line, but it is well to know how to get a fairly satisfactory stream. The best way to do is to make experimental layouts and actually see the result yourself.

Should be Prepared for Water System Failure

There is alway the chance of a failure of the water system. Particularly for our smaller water systems a fireman ought to consider what he would do in case of a failure, before it happens. If you cannot work the thing out when it is quiet, and there is no emergency, you surely cannot do as good a job if it comes on you like a thief in the night. Each of you should imagine that the water system in your home town failed for an hour or even for a half a day. What steps are you going to take? How are you going to utilize what water may be around and what are you going to plan to do, so if the emergency arises you are going to be able to devote your entire energy in directing your department and using the equipment you have and not having to think out some scheme to handle the situation?

I was up at Sandusky, Ohio, immediately after the cyclone which swept through there last year. The chief of the fire department had thought more or less of the subject and he immediately stationed his apparatus so he could get water from the lake into about half of the city and he got about 5,000 feet of hose from Toledo and then he could get some water in practically all parts of the city. Here was the emergency, but he had it all figured out beforehand, and the companies went where they were supposed to go, and I think the fire loss was practically nil, except in that portion swept by the tornado.

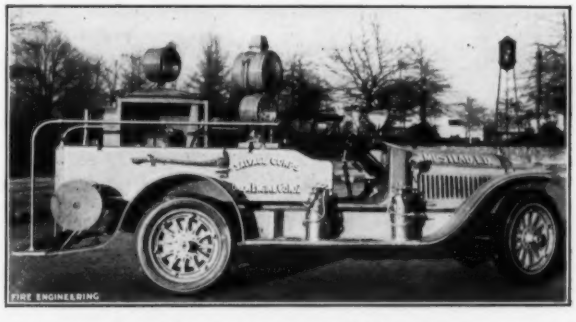
Some of our larger cities are giving thought to what might result in case an earthquake should rupture the pipes in their water systems. The water department and the fire department in the city of Detroit are considering this question. It will not do you any harm to figure such things out beforehand, particularly because smaller plants are more unreliable than larger ones, although their service record is very good on the whole. Be prepared for the emergency so you can do the best you can with the equipment you have.

Searchlight Car Gives Valuable Aid

Flood illumination is now being considered by many fire departments. The electric lights help in placing ladders, rescue work and in transmitting signals from the men at the fire to those near the apparatus.

Hempstead, N. Y., has been most fortunate in designing such an outfit. August Oman, an officer in the department, helped to design and build the equipment. In consists of an ordinary truck on which is mounted a Universal 4 k. w. electric plant which generates 110 volts for operating the flood lights.

These lights consist of one 1,000-watt portable flood light, one 500-watt swivel light, six 250-watt hand lights and three 250-watt portable lights. The lights are connected to the switch-



Apparatus Equipped with Universal Lighting Plant to Operate Flood Lights at Hempstead, N. Y.

board of the lighting plant by means of cable which is mounted on wheels for convenience in handling.

Over 1,600 feet of cable is used, and for convenience, the cable is made up in fifty foot lengths similar to the hose. The cable has one, two and three-way kleagle plugs.

This apparatus has been exhibited about New York city and it has evoked a great deal of interest.

Many Die in River Ship Fire

Other nations are not exempt from great steamboat fires, with heavy loss of life.

Fire which originated in a mattress in one of the third-class cabin compartments of the steamer Paes De Carvalho some time ago, resulted in an explosion in which many died and which destroyed the ship.

The boat operated on the Solimos River and was owned by the Amazon River Navigation Company, with their home port at Para, Brazil. The fire reached some tins of kerosene and gasoline which caused the explosion. The captain and eleven other members of the crew, as well as twenty-six passengers, perished.

Everett, Wash., Rushes Station Construction—Chief Charles E. Swanson of Everett, Wash., hopes to have the new bungalow fire station being erected along the water front, completed in June at about the same time that the city expects to receive a new pumper.

What Does Salvage Work Include?

(*Continued from page 532*)

Other grades for retail are packed in cardboard packages and paper bags, which offer little protection to the contents. For the wholesale trade coffee is packed in burlap bags. Roasted coffee is more susceptible to water damage than green coffee. Green coffee may be wet without damage, if it is dried and roasted within a reasonable period of time. Roasted coffee will quickly mildew and is worthless in this condition. Coffee is a commodity frequently subjected to fire and water damage due to the fact that the majority of jobbers do roasting and this process presents a serious fire hazard with resultant numerous fires.

Roasted coffee for retail should be packed in tins, or in bags lined with waterproofed paper. A waterproofed inner lining should be provided for burlap bags intended for roasted coffee.

Colored Materials

Colored materials are peculiar in some of their characteristics. Many of the colored wash fabrics will not run when washed because they are carefully rinsed and dried. If wet and allowed to stand in this condition colors will spread.

Embroideries may have a brownish cast sometimes attributed to smoke and water stain but often the result of age. Embroideries stained by water will have an uneven color.

White materials, intended to be washed, are sometimes assumed immune to water damage, but there is always the danger of mildew and all material that is wet should be thoroughly dried.

Corsets

Because of the steel frames and brocaded materials used corsets are particularly subject to water damage. Rust will work its way through stock which has been wet and heavy losses can be expected in stocks of this kind, particularly in the cheaper grades and unless the stock is adequately boxed.

Crockery and Glassware

The chief danger in stock of this class is breakage, although there is also an expense due to handling wet or smoked crockery. Tables used for the exhibition of fragile merchandise such as crockery and glassware should be constructed with a pipe frame running above the table and fastened to uprights at the centre of each end. This rack can be used for hanging advertising literature or other displays and will facilitate the spreading of salvage covers without breakage or delay.

Electric Floor Lamps

One of the stocks most difficult to protect is that of electric floor lamps. Floor lamps are often found in large numbers with shades in place, and when in this condition present a most difficult covering problem.

Only samples should be placed on display. The shades should be stored in cases and the stands remain wrapped and stacked in a manner convenient to cover.

Fibres

The term, combustible fibres, covers cotton (including linters and cotton waste), sisal or henequen, ixtle, jute, hemp, tow, cocoa fibre oakum, baled waste, kapok Spanish moss, and excelsior (see Regulations on Combustible Fibres). These fibres are usually formed into bales and may be partly covered by burlap or other wrapping. Their hazardous characteristics are, according to the nature of the fibre, a high degree of combustibility, absorption of water, tendency of some fibres to swell, and the bursting of bales by burning of the confining bands or ropes.

All such materials stored in the open should be enclosed in tarpaulins. In warehouses bales should not be tiered or piled and should be separated into small units by aisles and clear spaces. Where bales must be tiered or piled the stability of the pile is of great importance.

Bales should be grouped to permit covering with salvage covers.

Cotton in bales gives a varying salvage dependent largely upon the quality of the cotton and the state of the market.

Floss and Down

Floss will mat if wet and articles stuffed with it usually suffer severely. Down and kapok can ordinarily be renovated.

Flour

Flour in barrels and bags presents a peculiar resistance to water. A barrel or bag of flour coming in contact with water will immediately form a thick paste on the side exposed, and this in turn tends to prevent the water and smoke taint penetrating the entire barrel or bag. For this reason a large salvage is often realized from such stocks. Skidding and covering the stock and keeping piles away from the side walls is recommended to facilitate salvage work.

Foodstuffs

Foodstuffs suffer severely in fires as a rule because they are exposed to smoke and water taint. Bacon, meat, solid fats, butter and cheese may give little or no salvage even if not actually attacked by flame if the fire has been bad, or if there has been much smoke. Greasy smoke causes the worst damage. The pure food laws largely determine the percentage of salvage permissible in foodstuffs.

Furniture

Crated furniture when wet at fires is liable to serious damage unless the wrappings are removed immediately. Such stock is wrapped in excelsior with a binding of ordinary paper or burlap and crated. When allowed to remain in a wet or partially wet wrapping the varnish spots and the glue softens, causing serious damage with small salvage possibilities. A wrapping of waterproofed paper should be used.

Furs

The damage to furs and skins is usually considerable, even when they have only been subjected to heat or smoke. Water has a bad effect on the natural grease in fur, especially if it has been dyed or faced, making the fur hard and loosening the hair.

Gentlemen's Furnishings

Men's laundry goods, such as shirts, collars and cuffs, when damaged will always sell at a fair price, and in the work shirts the damage is very light.

Derby or stiff hats are almost worthless if badly wet or smoke stained, but the damage to fedoras, cloth and soft hats is much less since they are more easily reconditioned.

Work goods of all kinds, trousers, shirts, jumpers, overalls and gloves are all damaged to a less extent than dress garments. A small damage in a work garment might easily be a large damage in a dress garment. Work trousers, overalls and jumpers as a rule have metal buttons, and unless these are cared for will rust and rot the cloth next to the button, thus materially damaging the garment.

Suspenders, arm bands, garters and any article with rubber in it will be badly damaged, as extreme heat will take the life out of the rubber.

Cheap jewelry and collar and cuff buttons are mostly of metal and will tarnish.

The colors in fancy neckwear are likely to run if wet. The plain colors are less susceptible to damage. Men's ties are frequently filled or padded with a wadding which if wet renders neckwear useless.

(*To be continued*)

Brookline Has Well Designed House Watch Desk

The house watch desk in one of the fire stations in Brookline, affords a good example of convenience in equipment for the man stationed there. The black box directly below the shelf controls the traffic light and vibrating bell mounted just outside of the fire station. The metal file on the desk contains in card form the list of fire alarm boxes. The equipment has been installed by the Gamewell Company.

Stream Thrown Over Highest Building

During a test of the new Ahrens-Fox triple combination pumper delivered to Colorado Springs, Col., a stream of water was thrown over the highest building in the city. With a 2-inch nozzle the pumper delivered 1,197 gallons per minute—the hydrant pressure registered forty pounds. The stream went fifty feet over the flag pole of the building shown in the illustration.

Views at the Test of the Pumper for Colorado Springs

Shown in the insert from left to right are John P. Ahrens, vice-president of the Ahrens-Fox Fire Engine Company, Chief Healey of Denver, Col., and Chief McCartin of Colorado Springs.

Racine, Wis., Has New Fire Station

An attractive bungalow type fire station of California bungalow architecture and constructed with cream colored brick has been erected in Racine, Wis. The roof is of green tile and all exterior woodwork such as windows are painted green.

All of the interior woodwork of the station including the floors in the living quarters is of quartered oak, painted an

Attractive Bungalow Fire Station in Racine, Wis.

antique gray. In the apparatus room, the woodwork is of cypress.

The lounging room is entered from a large porch through a heavy beveled plate glass door. At one end of the room is a built in book case that covers the entire side with the exception of the space taken up by an open fireplace. The room is illuminated by overhead lights and shaded wall lights, and provisions have been made for floor lamps.

In the center are two officers' chambers that will be occupied by the two captains of the two companies that will occupy the station. The dormitory for the men is at the rear. Each man has an individual locker for storing his personal belongings.

The kitchen has a concrete floor and is equipped with the most modern plumbing fixtures. An alcove has been built for the installation of an ice box and an entire wall is provided with built in closets for the storage of food and utensils.

A large part of the basement has not been excavated, but in the section that has been dug, there are provisions for coal storage and the heating system, showers and a large gymnasium.

The apparatus floor has ample room for the apparatus of two companies. Many closets have been provided for the storage of hose. The station will be the home for two companies of six men each. The city owns the land adjacent to the station, and Chief Clarence E. Gillen who furnished the description of the

Floor Plan of Bungalow Fire Station in Racine, Wis.

station for the possible benefit of other chiefs, plans to landscape the ground in the near future, and to make the station a real home-like dwelling.

Explosion and Fire in Buried Oil Tank

Fuel oil at the Rockford Drop Forge Company, Rockford, Ill., was stored in a 100,000-gallon buried concrete tank 130 feet long, 12 feet wide and 10 feet deep, with top about 18 inches below a paved brick roadway. The walls, top and bottom of the tank were 12 inches thick, reinforced with steel.

Not long ago the tank contained about 50,000 gallons of medium-light fuel oil, having a specific gravity of about 28 degrees Be. and flash point of 220 degrees F. The temperature of the oil being used from the tank was from 80 to 90 degrees, although a higher temperature must have existed near the 2-inch heating pipe, which extended around the tank immersed in the oil, for steam at 40 pounds pressure was being used in the coil. This corresponds to a temperature of 287 degrees F. The oil heated locally by the steam coil would rise and form a surface-layer of oil heated to the flash point, thus forming inflammable vapors in the upper portion of the tank.

Near the oil-storage tank a steel ash hopper was being constructed, requiring the use of an oxy-acetylene torch. Sparks from this torch fell either into or nearby an unproteced 6-inch vent from the oil tank and caused an explosion, which blew the top from about four-fifths of the area of the tank, setting fire to the oil. Most of the concrete slab fell back into the tank, but small pieces were thrown fifty feet into the air and forty feet horizontally.

Five 2½-gallon foam extinguishers applied by mill employes reduced the intensity of the fire, but did not extinguish it. About five minutes after the explosion the public fire department arrived and directed a hose stream into the tank. This extinguished the fire in about five minutes, due to the stiring and cooling action of the water. The hot surface-layer was mixed into the cold body of oil beneath, until the burning oil was cooled below its fire point.

Water, however, could not be used in this way to extinguish

a fire in gasoline, kerosene, or even thin fuel oil of low flash point. They will float and burn on top of the water. Foam extinguishers of large capacity would be needed for a fire in such oils. Consequently if the tank had been nearly full of a light oil, the hose streams might have overflowed the tank and spread the burning oil.

Although there were several small buildings near the tank as shown in the accompanying picture, they were not injured.

Ruins of 100,000-Gallon Buried Concrete Oil-Storage Tank.

Reinforced Concrete top was 12" thick and 18" below paved roadway. Explosive vapors were ignited at unprotected vent openings by sparks from acetylene torch. Explosion lifted and wrecked top slab which fell back into tank as shown. None was injured; the fire was confined to the tank.

The damage, which was confined to the storage tank and its contents will amount to $10,000 to $12,000.

Avoid overheating fuel oil in storage tanks.

Protect vent openings in oil tanks with fire arrester screens, and filling connections with an oil seal.

When using acetylene torches, take careful precautions against flying sparks.

Keep oil-storage tanks away from important buildings.

—Factory Mutual Record.

Federal Electric Market New Siren

A new siren known as the "Triple-A" siren is being marked by the Federal Electric Company of Chicago, Ill.

It consists of three sirens mounted on a triangular base, the

New Triple Siren, Mounted on Triangular Base

three sirens being operated in parallel from one switch control. Each siren has approximately one-third horsepower or a total of one horsepower for the entire installation. It is entirely enclosed and it is protected from the elements. The entire siren weighs forty pounds.

Each of the three sirens has a different tone, and combined the sound is said to be very pleasing.

Inspections Bring Lower Insurance Rates

Because of the systematic inspections made by the fire department, Chief George E. Landrey of Troy, Ohio, has been instrumental in reducing the insurance rates of the town.

He makes regular trips through the business district inspecting alleys as well as basements. Should he find a pile of rubbish, he inquiries of the one in charge of the store or property if there is anything in the pile of value. The answer gives him the angle upon which he should base his fire prevention talk. By explaining in a very courteous manner the hazards of the rubbish pile, the co-operation of the owner is always obtained. Chief Landrey writes as follows:

"I have found out that one can catch more flies with sugar than with vinegar and that courtesy pays. In 1914, I have had an ordinance passed which would permit the fire department inspections. I immediately set to work on bad flues and roofs which were then the most important hazards. Once the department commenced to make inspections, it was not long before the people saw the benefits to be derived, and they helped considerably. By keeping at the work continually, we have been able to reduce the insurance rates and the city expects another reduction in rates within another short period.

"An asset in this work is for the chief to keep aloof from politics and as far as possible, to keep his mouth shut. Fire prevention requires that the idea should be hammered into the public continually.

"School children are the best means for the propagation of printed literature, circulars and so forth. In this way, the printed message is brought before the attention of the parents. For the past number of years, our fire loss has been about two to three thousand dollars, which I believe is commendable. The department only consists of five paid men—two on day, two on night duty and myself. In addition, we have a comparatively large area to cover."

INSPECTOR'S REPORT

No. .....

WARD Date .....

Location: No. Street .....

Occupant .....

Owner or Agent .....

Address .....

INSTRUCTIONS—INSPECT ENTIRE PREMISES

Cellar .....

Hallways .....

1st Story .....

2d Story .....

3d Story .....

Attic .....

Yard .....

Alley .....

Vacant Lot .....

Hazel .....

Store .....

Defects .....

Inspector's Report Blank Used in Troy, Ohio

Vincentown, N. J., Installs Siren—Vincentown, N. J., has installed an electrically operated siren.

Roscoe, Pa., Tests New System—A new fire alarm system, which was installed at a cost of $6,000, has been tested in Roscoe, Pa.

Site Purchased for Cleveland, O., Station—A site has been purchased in Cleveland, Ohio, on which will be erected a new fire station.

Oakmont, Pa., to Get New Fire Apparatus—Bids were received by the Oakmont, Pa., borough council for supplying a one thousand gallon pumper.

Mt. Ephraim, N. J., Repeals Apparatus Purchase—The brought council of Mt. Ephraim, N. J., rescinded the order to purchase a pumper for $9,000.

Ottumwa, Ia., Chief Has New Cor—A new roadster was purchased for the use of Chief Sloan of Ottumwa, Ia. It will be equipped with a chemical tank.

Yonkers, N. Y., Has Long Term Men—Fourteen members of the Yonkers, N. Y., department are rounding out twenty-seven consecutive years in service.

CONVENTION DATES

June—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 22nd Annual Convention, Darlington, S. C., date at pleasure of Convention City. Secretary, R. S. Hood, Sumter, S. C.

May 31-June 3—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. 21st Annual Convention, Niagara Falls, N. Y., in connection with Conference of New York State Mayors and Other City Officials. Secretary, Chief James H. Golden, Cohoes, N. Y. Chairman, Exhibit Committee, Chief John Espey, Elmira, N. Y.

June 1-2—INSTITUTION OF FIRE ENGINEERS (British). 4th Annual Conference, Liverpool, England. President, Firemaster A. Pordage, Edinburgh, Scotland. Interim Secretary, Miss M. B. Calder, Edinburgh Fire Brigade.

June 6-9—OKLAHOMA STATE FIREMEN'S ASSOCIATION, 33rd Annual Convention, Okmulgee, Okla. Secretary, Charles Slemp, 312 East 13th Street, Oklahoma City, Okla.

June 7-9—OHIO FIRE CHIEFS' ASSOCIATION. 10th Annual Convention, Mansfield, Ohio. Secretary, Chief Philip J. Harty, Fire Department, Youngstown, Ohio, Sheet and Tube Company.

June 7-9—SOUTH DAKOTA FIREMEN'S ASSOCIATION. Annual Convention, Pierre, S. Dak. Secretary, J. J. Waltner, Freeman, S. Dak.

June 8—NORTHWEST ARKANSAS FIREMEN'S ASSOCIATION. Annual Convention, Springdale, Ark. Secretary-Treas., F. M. Brock, Bentonville, Ark.

June 8-9—EASTERN ASSOCIATION OF SUPERINTENDENTS OF FIRE AND POLICE TELEGRAPH. Annual meeting, Hartford, Conn.

June 10-11—DELAWARE COUNTY FIREMEN'S ASSOCIATION. Annual convention Drexel Hill, Pa. Secretary, Timother McCarey, Chester, Pa.

June 14-16—TEXAS STATE FIREMEN'S ASSOCIATION. Annual Convention, San Antonio, Tex. Secretary, Olin Culbertson, Hillsboro, Tex.

June 15—NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 54th Annual Convention, Delphos, Ohio. Secretary, C. R. Bowerson, Toledo, Ohio.

June 16-18—PROVINCIAL FEDERATION OF ONTARIO FIREFIGHTERS. Annual Convention, Windsor, Ont., Can. Secretary-Treasurer, David H. Lamb, 132 Bellevue Ave. (2) Toronto.

June 16-18—MONTANA STATE FIREMEN'S ASSOCIATION. 36th Annual Convention, Helena, Mont. Secretary, D. E. Moser, Bozeman, Mont.

June 17-19—WISCONSIN STATE FIREMEN'S ASSOCIATION. 40th Annual Convention, Baraboo, Wis. Secretary, E. Philip Mueller, Jefferson, Wis.; State Organizer, Chief H. H. Niemeyer, Portage, Wis.

June 17-20—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Sunbury, Pa.

June 17-18—FOUR COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Lehighton, Pa. Secretary, P. J. McNally, West Catasaqua, Pa.

June 18—LEBANON COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Fredericksburg, Pa. Secretary, William I. Kutz, Box 233, Myerstown, Pa.

June 20-25—ALLEGHENY COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Wilmerding, Pa.

June 21-23—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual Convention, Hollywood, Fla. Secretary, Chief F. C. Pfaender, Winter Haven, Fla.

June 21-23—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 38th Annual Convention, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Fire Department, Poughkeepsie.

June 21-23—KENTUCKY STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATION. 9th Annual Convention, Owensboro, Ky. Secretary-Treasurer, Capt. S. G. Render, 303 Speed Bldg., Louisville, Ky.

June 21-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Congress Hotel, Portland, Me. Secretary, Chief John W. O'Hearn, Watertown, Mass. For reservations address Geo. F. Cobb Traffic Manager, 774 Albany Street, Boston, Mass.

June 21-24—THIRD SHORT COURSE IN FIRE PREVENTION. To be held at University of Illinois, Urbana. Address, C. E. Palmer, 401 Engineering Hall, University of Illinois, or State Fire Marshall John G. Gamber, Springfield, Ill.

June 27-29—MICHIGAN ASSOCIATION OF FIRE DEPARTMENT CHIEFS. Annual Convention, Bay City, Mich. Secretary, Chief Frank Ford, Highland Park, Mich.

June 28-30—SOUTHERN NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. 32nd Annual Convention, Sag Harbor, L. I., N. Y. Secretary, August Kalb, Rockville Center, L. I.

July 12-14—MICHIGAN STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention, Lansing, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 13-14—INDIANA FIREMEN'S ASSOCIATION. 10th Annual Convention, Indianapolis, Ind. Secretary, Frank H. Miller, Fire Headquarters, Terre Haute, Ind.

July 19-23—SOMERSET COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Rockwood, Pa. Secretary, J. R. Shanks, Rockwood, Pa.

July 21-22—CENTRAL NEW YORK VOLUNTEER FIREMEN'S ASSOCIATION. 34th Annual Convention, Cortland, N. Y. Secretary, Thomas F. Murray, Cortland.

July 25-28—DOMINION ASSOCIATION OF FIRE CHIEFS. 19th Annual Convention, Hull, Quebec. Secretary, Chief James Armstrong, Kingston, Ont.

July 27-28—VERMONT STATE FIREMEN'S ASSOCIATION. 38th Annual Convention, St. Albans, Vt. Secretary, Edwin D. Moore, Bennington, Vt.

July 31-Aug. 1-2—IDAHO STATE FIREMEN'S ASSOCIATION. Annual Convention, Wallace, Idaho. Secretary, Willard Adams, Rigby, Idaho.

Aug. 1-2—WASHINGTON STATE FIREMEN'S ASSOCIATION. Annual Convention, Chehalis, Wash. Secretary, H. S. Jenkins, City Electrician, Fire Headquarters, Bellingham, Wash.

Aug. 4-6—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 34th Annual Convention, Portland, Ore. Secretary, State Fire Marshal Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.

Aug. 6—CALIFORNIA STATE ASSOCIATION OF FIRE CHIEFS. Annual Convention, Portland, Ore. Secretary, Chief William Cooper, Richmond, Cal.

Aug. 7-8—OREGON STATE FIRE CHIEFS' ASSOCIATION. 8th Annual Convention, Portland, Ore. Secretary, Thomas Coates, Tillamook, Ore.

Aug. 8-9—UTAH STATE FIREMEN'S ASSOCIATION. Twentieth annual convention, Springville, Utah. Secretary, H. E. Anderson, fire headquarters, Salt Lake City.

Aug. 9—MASSACHUSETTS PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, New Bedford, Mass.

Aug. 9-11—CUMBERLAND VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 26th Annual Convention, Western Port, Md., Secretary, C. L. Jacobs, Waynesboro, Pa.

Aug. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Portland, Ore. Secretary, Chief J. J. Mulcahey, Yonkers, N. Y.; Executive Secretary, State Fire Marshal Jay W. Stevens, Merchant's Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Albert Herring, Murphysboro, Ill.

Aug. 14-16—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, Elmira, N. Y. Secretary-Treasurer, Frank A. Emden, 1200 Lenox Avenue, Utica, N. Y.

Aug. 16-19—FIREMEN'S ASSOCIATION STATE OF NEW YORK, and WESTERN NEW YORK VOL. FIREMEN'S ASSOCIATION. Joint convention of both associations, Niagara Falls, N. Y. Secretary, State Association, Fred A. Davis, Fort Edward, N. Y.; Secretary, Western N. Y. Association, Henry A. Clark, 21 Porter Avenue, Batavia, N. Y.

Aug. 24-26—VIRGINIA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and tournament, Alexandria, Va. Secretary, E. K. Landis, Pulaski, Va.

Aug. 24-27—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual Conference, Stockton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Sept. 7—DELAWARE STATE FIREMEN'S ASSOCIATION. 7th Annual Conference, Rehoboth Beach, Del. Secretary, Sam H. Carson, Dover, Del.

Sept. 7-8—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8—MISSOURI ASSOCIATION OF FIRE FIGHTERS. 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 12-14—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Russellville, Ark. Secretary, H. D. Compton, Little Rock, Ark.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 40th Annual Convention, Jacksonville, Ill. Secretary, Roy A. Alsip, Champaign, Ill.

Sept. 13-15—MASSACHUSETTS STATE FIREMEN'S ASSOCIATION. Annual convention, Salem, Mass.

Sept. 20-21—IOWA STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Emmetsburg, Ia. Secretary, E. E. Parsons, Marion, Ia.

Sept. 22-24—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Atlantic City, N. J. Secretary, William Exall, Chamber of Commerce Bldg., Newark, N. J.

Sept. 23—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Annual Meeting, Atlantic City, N. J. Secretary, Fred A. Trowbridge, 17 South Street, Morristown, N. J.

Oct. 4-6—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Shamokin, Pa. Secretary, Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 17-19—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

Newly Elected Fire Chiefs

BARRON, WIS.—Ben Becker.
BURLINGTON, WIS.—Morris Schneider, (re-elected).
BROKEN BOW, NEB.—G. Kindness.
PURCELL, OKLA.—Henry Kranf.
MANCHESTER, IA.—E. W. Williams.
WAUNAKEE, WIS.—W. J. Flatman.
ST. JAMES, MINN.—C. T. Crowley.
ROCK RAPIDS, IA.—John Theilman, (re-elected).
HALESITE, N. Y.—Hewlett Johnson.
ELECTRA, TEX.—R. E. Greenway.
MCCLUSKY, N. D.—James F. Dunn.
ROSEBURG, ORE.—James Fletcher, Jr. (re-elected).
HOOSICK FALLS, N. Y.—John J. Shea (re-elected).
NANTY-GLO, PA.—C. R. Dilling.
NORTH PELHAM, N. Y.—D. Amato.
AKRON, N. Y.—Glenn Gudridge.
SAC CITY, IA.—J. L. Figi (re-elected).
FAIRPORT, N. Y.—Bert Stevens (re-elected).
WAUCOMA, IA.—V. C. Willis.
CANOVA, S. D.—S. E. Strobel.
ITASCA, TEX.—Frank Davis.
SHEFFIELD, IA.—Frank Baxter.
NEWELL, IA.—W. A. Olsen.
DENISON, IA.—A. Dannels.
NEW PORT RICHEY, FLA.—George Holbrook.
BEACH, N. D.—A. J. Gilman.
CHAPMAN, NEB.—H. Wilhelmi.
MONTICELLO, ILL.—Robert Hubbard.
CORNING, IA.—John Nevius, (re-elected).
JANESVILLE, MINN.—Frank Morrill, (re-elected).
AMERY, WIS.—Charles Johnson.
CARVER, MINN.—Frank Bachmeyer (re-elected).
RICHMOND, WIS.—Wm. Sandgren (re-elected).
SHELBY, IA.—O. N. Croft.
ST. LOUIS PARK, MINN.—J. Williams.
MONTROSE, PA.—R. Jewett.
HUBBARD, ORE.—C. E. Thompson.
SHELTON, NEB.—T. G. Tritt (re-elected).
LE ROY, N. Y.—Howard H. Carmichael.
NOONAN, N. D.—Elmer Larson (re-elected).
COLTON, S. D.—E. Lifto.
SAYREVILLE, N. J.—Frank Kosh.
BELLE PLAINE, IA.—A. Roettmer.
NEPTUNE CITY, PA.—Forrest Cottrell.
AVON, N. J.—Albert Reid.
ABINGTON, ILL.—Harry Eldridge.

Department and Other Reports Received

Columbia, S. C.—Annual report of the Chief of Fire Department; 102 pages and cover.

Schenectady, N. Y., Bureau of Fire—Condensed report of the Bureau of Fire; sixteen pages.

Elizabeth, N. J.—Twenty-fifth annual report of the Board of Fire Commissioners of Elizabeth, N. J.; thirty-five pages and cover. Complete with the response made by fire apparatus the past year.

New Rules of the New York Fire Department

(*Continued from page* 535)

instrument, preceded by the company number, the Company shall call Central Office on telephone.

(c) When received at the Central Office followed by the company number, the Dispatcher shall call the Company on the telephone.

3-3-3—Repeat the last station transmitted.

FORMS.

"B"—Absence Without Leave

Specification 1. That ..... of ....., Co. No. ..... was absent from company quarters without permission from proper authority for ..... days ....., hours, and ..... minutes.

This between the hours of ..... o'clock .... M. on the ..... day of ..... 19.. and ..... o'clock.... M. on the ..... day of ..... 19.., at the quarters of ..... Co. No. ....., in violation of Section ..... Rules and Regulations, 19...

Specification 2.

Specification 3.

Same as above. Alterations of places and dates to be made where necessary.

Witnesses:

.....

.....

Captain, ... Co. No....

"C"—Neglect of Duty

Specification 1. That ..... of ..... Co. No. ....., did neglect to .....

.....

.....

This at ..... o'clock .... M., on the ..... day of ....., 19 ..., at (give location).....

.....

in violation of Section ...., Rules and Regulations, 19...

Specification 2.

Specification 3.

Same as above. Additional specifications will be made to cover every other case of Neglect of Duty, and in each case the section violated will be given.

Witnesses:

.....

.....

Captain, ... Co. No. ....

"D"—Reckless Driving

Specification 1. That ..... of ..... Co. No. ...., while acting as chauffeur of apparatus attached to ..... Co. ...., did drive in such a reckless manner as to cause a collision between the..... of ..... Co. No. ...., and.....

.....

resulting in the breaking of .....

and otherwise damaging of.....

to such an extent as to render the.....

unfit for use.

This while proceeding to (or returning from)..... at .... o'clock ....M., in ..... Street, between ..... and ..... Avenues, on the ..... day of ..... 19..., in violation of Section ...., Rules and Regulations, 19...

Specification 2.

Specification 3.

Same as above. Alterations to be made out to cover all other cases of reckless driving of apparatus, reckless piloting of fireboats, and reckless handling of tiller wheel, under Rules and Regulations.

Witnesses:

.....

.....

Captain, ... Co. No. ....

"E"—Violation of Rules Relating to House Watch Duty

Specification 1. That ..... of .... Co. No. ...., while (detailed as house watchman) or (in command of) ..... Co. No. ...., did permit persons not members of that company, or of the Fire Department, to lounge in, or about the quarters.

This at ..... o'clock .... M., on the ..... day of ....., 19...., at the quarters of ..... Co. No. ...., in violation of the above section.

Witnesses:

.....

.....

Specification 2. That ..... of .... Co. No. ...., while (detailed as house watchman) or (in command of) ..... Co. No. ...., did permit ..... to enter company quarters for the purpose of soliciting orders, and to transact business.

This at ..... o'clock .... M., on the ..... day of ..... 19...., at the quarters of ..... Co. No. ...., in violation of the above section.

Witnesses:

.....

.....

Chief of ..... Battalion, or

Captain, ... Co. No. ....

"F"—Disobedience of Orders

Specification 1. That ..... of .... Co. No. ...., having been ordered by his commanding officer, or by ..... of ..... Co. No. ...., to .....

.....

did refuse to obey said order, and replied in words, to wit: "I will not do it, or.....,"

.....

This at ..... o'clock ... M., on the ..... day of ....., 19..., at the quarters of ..... Co. No. ..., in violation of Section ...., Rules and Regulations, 19...

Witnesses:

.....

.....

Specification 2.

Specification 3.

Specifications will be altered where necessary, to cover other cases of disobedience of orders.

Captain, ... Co. No. ....

"G"—Being Under the Influence of Liquor, Drug or Compound

Specification 1. That ..... of .... Co. No. ...., was under the influence of an intoxicating beverage, drug, or compound while on duty or in uniform, to such an extent as to be unable to perform his duties in a proper manner, as found by Medical Officer.....

.....

This at about ..... o'clock .. M., on the ..... day of ....., 19..., at the quarters of ..... Co. No. ..., in violation of Section ...., Rules and Regulations, 19 .....

Witnesses:

.....

.....

Specification 2.

Specification 3.

Same as above. Specifications will be made to cover other cases of being under the influence of an intoxicating beverage, drug, or compound, with alterations of places, dates, etc.

Witnesses:

.....

.....

Captain, ... Co. No. .....

"H"—Disrespect to Superior Officer

Specification 1. That ..... of .... Co. No. ...., did use disrespectful language to his superior officer .....

of ..... Co. No. ...., in words to wit (use exact language): .....

.....

This at about ..... o'clock ... M., on the ..... day of ..... 19 ..., at (give location).....

..... in violation of Section ..., Rules and Regulations, 19....

Witnesses:

.....

.....

Specification 2.

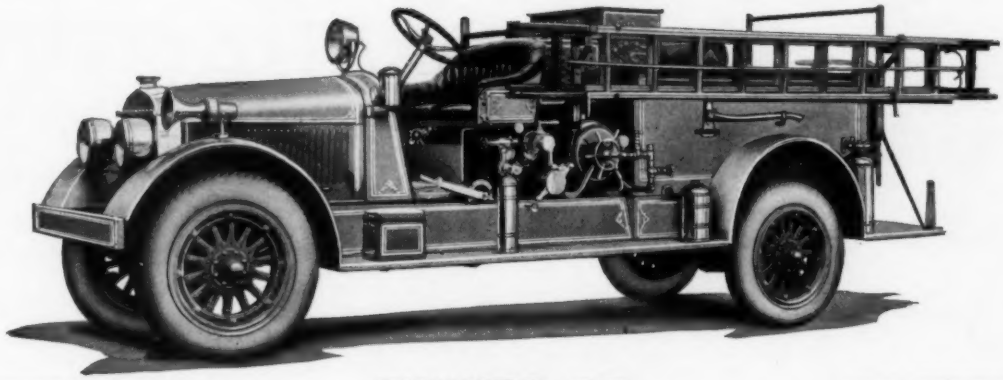
Specification 3.

Same as above. Specifications will be made to cover other cases of disrespect to superior officers, and should show places and dates, where necessary.

Captain, ... Co. No. .....

(*To be Continued*)

The "UNIVERSAL"



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A size for every town and factory.
Steam or air operated.

Successful Since Sixty-Eight

Union Water Meter Company

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Water Meters - Chronometer Valves

Easy Turning Stops - Pressure Regulators

Presses for Lining Pipe - Alarm Signals

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Adequate fire protection demands reliable fire alarm signal equipment. H-S fire alarm boxes can be absolutely depended upon to operate perfectly every time.

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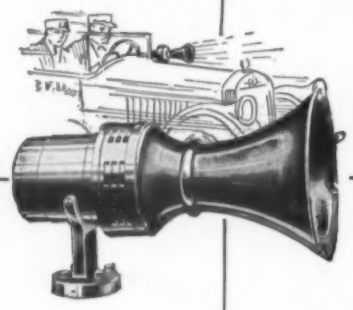
DEPT. G., MOLINE, ILLINOIS

Manufacturers

Traffic Signal Equipment — Fire Alarm and Police Signal Equipment

Magnetic Sign Flashers

Complete Fire Signalling Equipment for Municipalities. Complete Installations



The Sterling No. 12 APPARATUS SIREN

for

The Chief's Car and Other Apparatus — the Siren that Dominates Traffic

Just a touch of the button and the mighty voice of the Sterling No. 12 clears traffic for blocks ahead! Can't be mistaken — never fails — endorsed by authorities everywhere. Complete with cord and switch, 6- or 12-v., only $40.00

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Electric Sirens designed exclusively for blowing code signals

Electric Sirens for general alarms — the famous Model "M".

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Dressy Uniform Shirts

MADE of medium blue TubTest (fast-color) chambray or dark blue TubTest percale; with two detachable laundered collars to match. This Signal, now specified by Fire Chiefs in several American cities, is favored because it is dressy, practical; because we guarantee absolute satisfaction in every shirt.

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Quality First — Signal TubTest — Union Made

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The Burrell All Service Gas Mask is the only mask approved by the United States Government for complete protection against Carbon Monoxide, Ammonia and every known poisonous gas. Write for Bulletin F-3.

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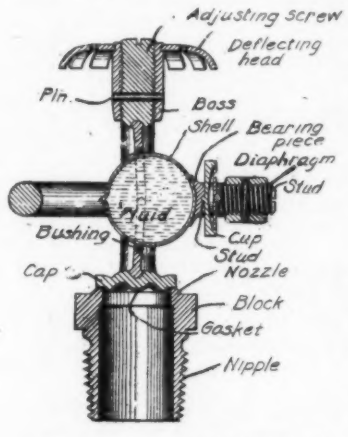
Recent Patents

Descriptions of Patents Recently Issued of Interest to Fire Departments—Sprinkler Head—Fireman's Helmet

Sprinkler Head

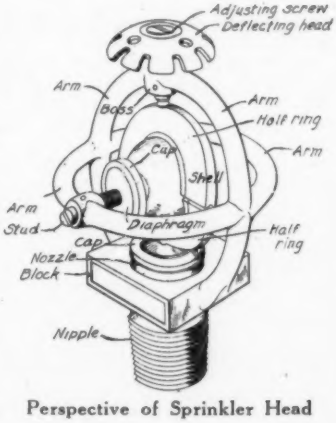
A design of a sprinkler head has been patented (No. 1,571,422) by Oswald J. Lubbock of Alameda, Cal. One of the objecs of the design is to construct a sprinkler head in which the release of the head is accomplished by the rupture of a frangible shell containing an expansible fluid. One of the illustrations shows a perspective drawing of the invention and the other a cross section taken vertically.



Cross Section of Sprinkler Head

The head consists of a cage yoke of such form as to provide the maximum protection for the strut and releading device against mechanical injury. The release of the head is affected by the collapse of a strut, normally held in operative position by a frangible shell disposed between the strut and the yoke. The shell is filled with a fluid capable of breaking the shell upon its expansion at a predetermined temperature, and upon the rupture of the shell, the strut collapses and the sprinkler head is released. Means are provided for adjusting the tension exerted upon the shell to keep it in place and for compensating for the changes in temperature.

The sprinkler head consists of a block termination at one end in a nipple which can be fitted into the usual pipe connection. The opposite end is formed to provide a nozzle normally closed by the cap between which and the nozzle, a soft metal gasket is placed. Formed on the block is a yoke comprising the arms which form a ring roughly circular in form and joining in the boss in which the strut adjusting screw carrying the deflected head is carried. A pin locks the screw in the adjusted position.



Perspective of Sprinkler Head

Between the cap and the point of the adjusting screw is a two-piece strut comprising the two half rings. One of the half rings is provided with a grooved seat along its diametral edges and the other is V-shaped to adapt it for complementary engagement in this seat. The adjusting screw is set so that the strut rings are laterally displaced a small amount—the line of contact lying a small distance to one side of the plane passing through the seats of the strut. Any other lateral displacement is prevented by a shell containing a fluid such as carbon tetrachloride capable of rupturing the shell due to expansion at a predetermined temperature. The interior of the strut ring is slightly beveled to form a seat for the shell and the shell is retained in the ring by a threaded stud adjustable in the transverse yoke arm.

The horizontal arm functions not only to support the stud but also as a protective means for the strut and releasing mechanism in which the latter function is aided by the yoke arm on the opposite side of the yoke.

In order to distribute the pressure between the shell and the stud over an appreciable portion of the surface of the shell, a bearingpiece is disposed against the shell to transmit the thrust of the stud. Against the bearing piece is a cup formed with a stud thereon adapted to seat in a corresponding recess in the bearing piece so that lateral disengagement of the two pieces is prevented. In the edge of the cup is a resilient diaphragm having an apertured center in which the point of the stud seats.

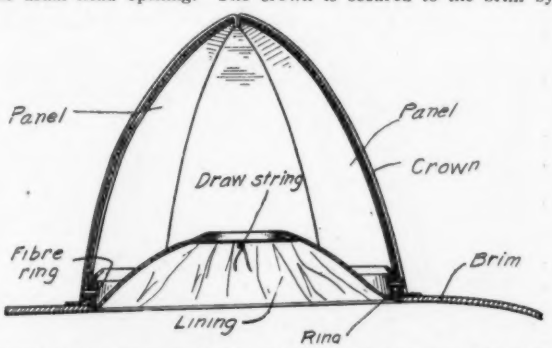
The shell and its contents are so arranged that when the surrounding temperature has passed a certain point, the expansion of the fluid ruptures the shell which thereupon falls from the sprinkler head. With the removal of the shell, the pressure of the water on cap causes the strut to collapse, and the strut parts will be thrown clear from the sprinkler by the pressure of the water. A lining bushing of copper is provided so that the stress on the strut will be lessened.

Fireman's Helmet

A new form of a fireman's helmet has been patented (No. 1,599,695) by Louis G. Wagner of Oakland, Cal. The object of the design is to provide a helmet that is light in construction and that will afford protection to the wearer. The illustration shows the helmet in cross section.

There is the usual crown that is formed from a number of panels. The panels are cut from commercial fibre board about ⅛-inch thick. In order to secure the edges of the various panels, a soft, pliable fibrous material is provided for the binding edge—a piece is provided for each of the panels.

The brim is preferably formed of a single piece of fibre with the usual head opening. The crown is secured to the brim by



means of the lower projecting edges of the piece, and the edges are stitched or otherwise secured to the brim.

A head receiving-lining is formed of cloth, leather, or other suitable material, and secured at its outer edge by a fibre ring. This ring is mounted on the inside of the crown adjacent to the bottom thereof and it is secured to the crown by rivets or other suitable means. The lining is provided with a draw string to accommodate the head of the wearer. The lining fits over the head and distributes the shock of a blow so that the head is not injured. The lower edge of the helmet does not engage the head nor does the head touch the panels.

After the helmet is formed the inside is covered with a coat of lacquer which fills the pores of the fibre and leather binding; the outside is painted with an enamel.

Fire Appliance Inventor Dead

Jacob B. Blaw, well known for his many inventions of appliances for the fire department, died in Atlantic City, N. J., shortly after the return of a visit to Philadelphia. He died at the age of fifty-three, from what is believed to be the effects of overwork.

Mr. Blaw had been suffering from heart disease for several months, and he intended to take a trip with a delegation from a lodge of which he was a member, to Harrisburg. However, he only went as far as Philadelphia and then returned home. He complained to his wife that he was ill, and he died shortly afterwards. Overwork had brought on a dilation of the heart.

FIRE DEPARTMENT ACTIVITIES

Pelle, Ia., Purchases New Pumper—Pelle, Ia., has purchased a Nott pumper equipped with a booster tank.

Sanford Re-Elected in Hartford, Conn.—George W. Sanford was re-elected fire commissioner in Hartford, Conn.

Amarillo, Tex., Gets New Pumper—A triple combination pumper has been delivered to Amarillo, Tex.

Somerville, N. J., to Erect New Station—Somerville, N. J., is planning to erect a new fire station.

Brackenridge, Pa., Plans to Purchase Apparatus—Brackenridge, Pa., is considering the purchase of a Seagrave pumper.

Hartford, Conn., to Have New Station—Bids have been invited for the construction of a new fire station in Hartford, Conn.

Youngstown, O., Turns Down Fire Contract—Youngstown, Ohio, has turned down a proposed contract to furnish fire protection for Coltsville township.

Southboro, Mass., to Have New Fire Station—A site has been selected for the erection of a new fire station in Southboro, Mass.

Blackwell, Okla., Dedicates New Station—Blackwell, Okla., dedicated its new fire station in the presence of visiting fire chiefs and state officials.

Brownsville, Pa., Chief Dead—Frank S. Lilley, for two years chief of the department in Brownsville, Pa., died from pneumonia at the age of forty-three.

Chief Leo G. Holden, Operated On—Leo G. Holden, chief of the fire department in Portland, Ore., has undergone an operation at the Good Samaritan Hospital.

Chief Ellis on 90-Day Leave—Chief Oscar Ellis of Dallas, Ore., has been granted a ninety day leave of absence. Roy B. Kelly was appointed chief to serve during this period.

Ft. Collins, Col., Firemen Want Pay Increase—The firemen of Fort Collins, Col., have asked for an increase in their pay. The matter is being considered by the city council.

Voldosta, Ga., Buys Apparatus—Voldosta, Ga., has purchased a pumper and an aerial truck, and they are now looking for sites on which to erect new fire stations.

Ft. Dodge, Ia., Has New Department Rules—A rule has been put into effect in Ft. Dodge, Ia., that firemen must serve a probationary period of six months before being appointed.

Boxes Being Installed in Bremerton, Wash.—The first fire alarm box has been installed in Bremerton, Wash., and others will be erected soon.

Conyngham, Pa., to Receive Apparatus—Delivery of a new piece of fire apparatus for Conyngham, Pa., is expected within sixty days.

Pearl River, N. Y., Chief Named Fire Warden—Leo Biedermann chief of Pearl River, N. Y., has been named fire warden.

Oak Cliff, Tex., Opens New Fire Station—A parade and dance commemorated the opening of a new fire station in Oak Cliff, Tex.

Chester, Pa., Celebrates Organization—A dinner was held in Chester, Pa., to mark the sixtieth anniversary of the fire department.

American Sailors Fight Chinese Oil Fire—American and British bluejackets were landed from the ships at Chinakiang, China, to isolate a fire in a Standard Oil Company tank caused by military fire.

Apollo, Pa., May Disband Companies—Two fire companies in Apollo, Pa., may disband and a new department organized because of the ill feeling existing between members of the fire department and the council.

Steubenville, O., Orders Seagrave Pumpers—An order for six hose cars and two ladder trucks was awarded to the Seagrave company by Steubenville, Ohio. The total cost for the apparatus is $49,870.

Green Bay, Wis., Appoints Acting Chief—Capt. Lawrence Fleming has been appointed acting chief of the Green Bay, Wis., department to take the place made vacant by the retirement of Chief Charles Kornowsky.

Burlington, Vt., Opens New Fire Station—The new central fire station of Burlington, Vt., has been officially placed in service. The basement is equipped with facilities for repair work, and it is possible to drive apparatus into the shop.

House Burns as Fire Protection is Discussed—While the taxpayers of Trockwood, Tenn., were meeting to consider the problem of fire protection, fire destroyed one of the homes in the town.

Portland, Ore., Receives Fire Boat Bids—Bids have been received for the construction of the three fire boats for Portland, Ore. The city expected to pay $300,000 and the lowest bid was $153,400; this allowed an ample reserve.

Ida Grove, Ia., Sets Date for Tournament—June 23 has been selected as the date on which the Maple Valley Firemen's Association will hold their tournament in Ida Grove, Ia., A. H. Aukerman of Ida Grove is secretary.

Pottsville, Pa., Firemen to Receive Compensation—Every fireman in Pottsville, Pa., injured while in service, is in line to receive compensation according to a report submitted by the city council. The opinion was handed down as a result of a question raised by the Firemen's Relief Association.

New Haven, Conn., Firemen Ask for Pay Increase—The firemen of New Haven, Conn., have made an organized move to obtain a pay increase. It is understood that the firemen want an increase of one dollar a day. At the present time they receive from $35 to $40 a week.

Red Oak, Ia., Firemen Cannot Disband—According to the articles in the constitution of the department of Red Oak, Ia., the firemen can not disband or split the spoils of the organization. Should there be a disagreement, the property will be transferred to the city.

Southern N. Y. Firemen to Meet in Sag Harbor—The annual convention of the Southern New York Volunteer Firemen's Association will be held in Sag Harbor, L. I., on June 28–30. Obout 1,500 are expected. This town entertained the association in 1888.

Indianapolis Awards Fire Apparatus Contracts—Indianapolis, Ind., has awarded the following apparatus contracts: one Mack pumper, two Mack ladder trucks, two Mack rescue cars, two mack combination hose cars, and one American-LaFrance aerial tower. The cost of this new equipment will be $79,400.

In Case of Drowning, Call the Fire Department—Arrangements have been made by the Charles City, Ia., fire department to respond to all cases of drowning in the city. Equipment for artificial respiration is housed in one of the fire stations.

Firemen Injured in Seattle Apparatus Crash—While responding to a fire, three members of a fire company in Seattle, Wash., were injured when the apparatus on which they were riding crashed into a trolley car. It is believed that slippery pavements made it impossible for the trolley to stop in time.

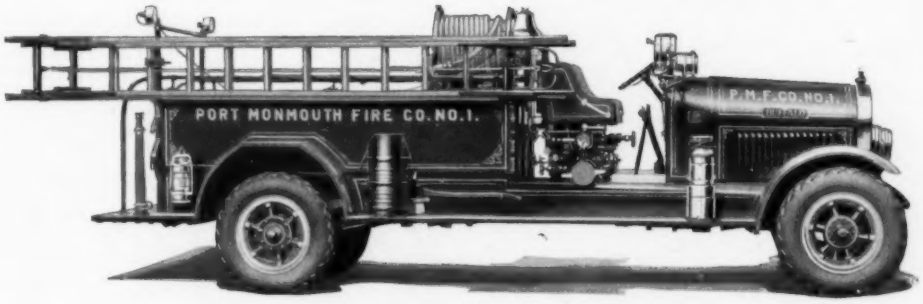
W. Medford, Mass., Has General Alarm Fire—Fire in a three-story brick building in West Medford, Mass., caused a general alarm to be sounded. The building was used as a storage place for rags and paper, and the structure was soon a roaring furnace. The alarm brought out four engine companies, one chemical company, one hose car and two ladder companies.

Long Island Theatres Have Guardians—As an aftermath of the Montreal theatre fire, the Long Island Theatre Owners' Association adopted a plan whereby each theatre would employ a matron to care for the children in the theatre. Before permitting the children to enter, the parents are required to sign a slip turning over the child to the matron.

George Haggerty Chief of Berkely, Cal.—George Haggerty, assistant chief in Berkley, Cal., has been named chief of the department to fill the vacancy caused by the death of the late Chief G. Sidney Rose. Chief Haggerty has been a member of the Berkely organization for twenty-three years. He served for eleven years as assistant chief under the late chief.

Improvements Recommended for Los Angeles—Chief R. J. Scott of Los Angeles, Cal., recommended that improvements be made to the department totalling $4,740,675. Since the bond issue in 1922, thirty-two annexations have been completed and 100,000 people have been added to the city population. The internal growth of the city has resulted in a population increase to 1,000,000 people. The city needs 3,700 more hydrants, and forty-five new bungalow fire stations at an approximate cost of $25,000 each. He also suggests the purchase of a new fire boat and an auxiliary speed boat. Real estate for the building program is estimated at $376,000.

Buffalo Type 50



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FIRE HYDRANTS
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The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

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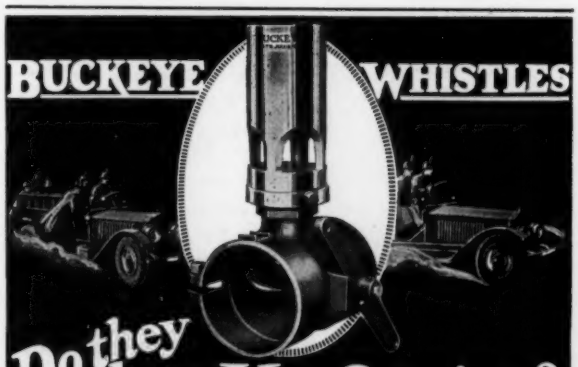

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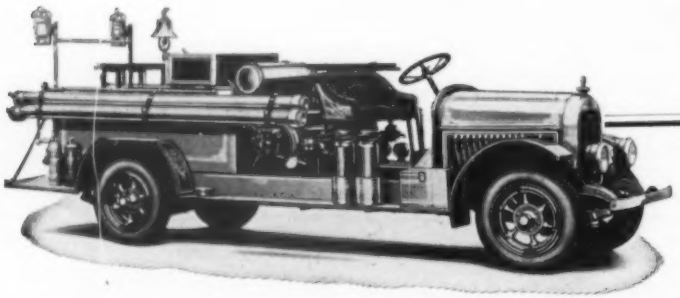

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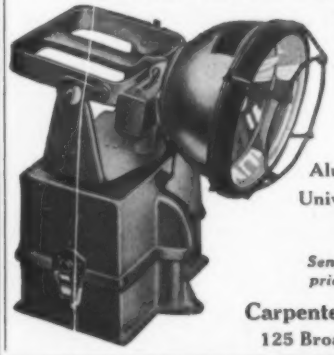

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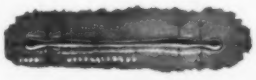

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INDUSTRIAL PLANT PROTECTION

California Favors New Safety Tongs

Pasadena and Sacramento fire departments have adopted safety tongs developed by Arthur Ohlsen, a member of the San Francisco fire department. It is expected that San Francisco will also adopt this as standard equipment. The tongs are used to handle live high voltage wires with safety.

The body of the tongs is made from well seasoned white eastern maple which has been impregnated with paraffine so as to render it a non-conductor. When all the moisture has been removed, it is equipped with molded Bakelite handles. At one end of the tongs are a pair of fingers which pass up through the maple wood pole and are attached to a grip placed near the center. By moving this grip toward the pole, the fingers open to receive the wire, and when the grip is moved in the opposite direction, the fingers are tightened.

Safety Tongs Used to Remove Live Wire From a Helpless Fireman

C. W. GEIGER.

Obstructed Pipes Found by Tests

This summer, a lead disc was found almost totally obstructing the waterway of a six-inch main supplying nearly five hundred sprinklers in an important warehouse. The sprinkler system had been recently installed and was being inspected for approval. The indicator valve located just outside the building was examined and found wide open. Our inspector then made the customary drain test by opening the drain valve at the sprinkler riser. The pressure immediately dropped to zero, indicating an obstruction in the line. There was not enough water flowing to supply one sprinkler head.

Lead Disc Which Stopped Flow to 500 Sprinkler Heads

The indicator post was examined and found in good order. A buried gate valve farther back on the line was dug up and found also in good condition. The six-inch elbow at the point where the pipe entered the building basement was then removed. On examining the underground pipe through the open end, the obstruction was found. There was some difficulty in removing the lead disc, which was one inch thick and weighed over eleven pounds.

The disc had been formed by a poorly poured lead joint. The indicator post valve and a length of pipe apparently had been assembled in the yard before being lowered into the trench. The lead had been poured while the gate was shut and the pipe held in a vertical position. Since the yarn was not properly packed, the lead plug formed on the face of the closed valve and obstructed the waterway after the valve was opened.

This dangerous condition might have existed unknown but for one thing—the drain test. Such an actual flow test provides the only means of discovering obstructed pipes. Even a valve which upon examination seems open may be partly or wholly closed, due to any one of a number of causes. A six-inch indicator post controlling over a thousand sprinklers was found shut when a drain test was made. The mechanic who operated the valve the previous day had turned it until the target read "open." But on taking the post apart it was found that the valve rod had parted from the operating nut, and that the valve disc had remained in the closed position when the valve was operated.—*Factory Mutual Record.*

New Sprinkler System Designed

A system of automatic sprinkler control that is much different from the one now in use had been patented by J. M. Lenz of Detroit, Mich.

A fuse forms the important part of the system. When any part of the fuse catches on fire, the fire on the fuse travels in two directions. One end of the fuse causes a contact to form and ring the warning gong; the other end burns the catch that holds the cap to the sprinkler head. A small charge of gunpowder is placed in the cap to ensure the head opening, and avoiding the danger from rust holding the cover. The only new parts to be purchased is the fuse.

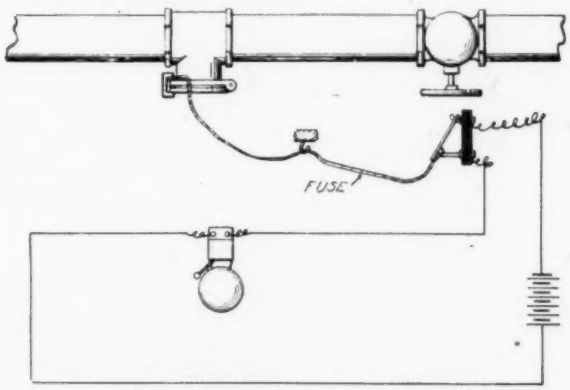


Diagram Showing the Operation of the Sprinkler

The inventor claims that his design will do away with the large amount of piping required for the present automatic sprinklers.

Ridley Park, Pa., to Receive Apparatus—Members of the Ridley Park, Pa., fire department are awaiting the delivery of new fire apparatus.

Cortland Plans for Firemen's Convention—Cortland, N. Y., is making preparations for the entertainment of the convention of the Central New York Volunteer Firemen's Association on July 21-22. The association has met in Cortland in 1898, 1907, 1913 and 1918.

Westerly, R. I., Station Due for Delay—Construction of the new fire station for Westerly, R. I., to replace the one destroyed in the recent $250,000 fire, is due for a long delay. It will be necessary to get the authority of the assembly before work is started, and the state body will not meet before January 1. The only thing that the town can do is to appoint a committee to investigate the building problem and to purchase apparatus.

PROPOSED IMPROVEMENTS

Marlton, Burlington Co., N. J.—Marlton Fire Co. to purchase a pumper to replace the chemical truck that was recently destroyed.

Stone Harbor, Cape May Co., N. J.—New fire fighting equipment to be purchased.

Toledo, Lucas Co., Ohio—Request that a new fire station be provided for the south end in the vicinity of Glendale and Detroit Aves. was made to the City Council. L. A. Elling, Chief.

Ft. Loramie, Shelby Co., Ohio—Village Council authorized the purchase of a chemical truck to replace the present hand-power equipment used by the fire department.

Milliville (Mail Hamilton) Butler Co., Ohio—New apparatus is to be purchased for fire department.

Dallas, Tex.—Construction of a new central fire station at a point near Olive and Pacific Streets, the purchase of a hook and ladder truck, and a new chiefs' car, was recommended by Tom Myers, Chief of Fire Dept., in his annual report.

Hayward, Alameda Co., Cal.—Purchase of a chemical fire engine and the organization of a volunteer fire dept. for the Sunset District was planned at a recent meeting of the Sunset Improvement Club. J. F. Garrity, President.

San Diego, Cal.—Council authorized the construction of three fire stations at a cost of $40,000. Provision for equipment to cost $15,000 for each station is to be made in budget for 1928. L. Almgren, Chief of Fire Dept.

Seward, Winnebago Co., Ill.—Plans being discussed for the purchase of a piece of fire apparatus here.

Augusta, Kennebec Co., Me.—City purchased an American-LaFrance pumper for the fire department at cost of $12,000.

Elkton, Cecil Co., Md.—Volunteer fire department here purchased a Mack fire truck at cost of $7,800.

Grand Rapids, Kent Co., Mich.—City purchased a site for erection of a new fire station. Geo. Broughner, Chief Fire Dept.

Glen Cove, Nassau Co., N.Y.—City purchased an American-LaFrance chemical car for the fire department here.

Anderson, S. C.—Considering the purchase of additional equipment for the fire department here.

Payson, Utah Co., Utah—City recently purchased a 500-gal. pumper for the fire department.

Nutterfort, Harrison Co., W. Va.—Town Council recently held meeting to discuss plans for forming volunteer fire department.

Columbus, Franklin Co., Ohio—City awarded contract to Seagrave Co., for furnishing six hose trucks and two hook and ladder trucks for the fire department, at $49,870.

Oakmont, Allegheny Co., Pa.—Borough has purchased a 1,000 gal. pumper at cost of $13,000.

When
In the Market
for equipment or supplies make your wants known through FIRE ENGINEERING. More bidders mean more competition and better satisfaction.

Woonsocket, Providence Co., R. I.—Common Council has passed ordinance authorizing the issuance of fire alarm system bonds to the amount of $32,000. Mr. A. J. Cote, Chief.

Northboro, Worcester Co., Mass.—An additional sum of $4,000 has been voted for the completion of the new fire station at Church St.

Vestal, Broome Co., N. Y.—Village is considering the issuance of bonds to the amount of $30,000 to establish a fire district.

Avoca, Steuben Co., N. Y.—At recent election it was voted in favor of appropriating $5,800 for the purchase of a pumper for the fire department.

Schenectady, N. Y.—Common Council will advertise for sale, in the near future the following bonds: $14,000 fire engine bonds; and $180,000 fire station bonds. A. G. Derra.

Saratoga Springs, Saratoga Co., N. Y.—City Council voted to call election on two propositions. One to vote on a $38,000 bond issue for the purchase of an aerial ladder truck, an electrically driven pump at the water works, and an addition to the present fire station. The other to vote on a $70,000 bond issue adds a cost of $500 each to the purchase of an aerial ladder and pump, and calls for a new station to cost $39,000.

Nutter Fort, Harrison Co., W. Va.—Volunteer fire department to be organized here and equipment purchased.

Hollidays Cove, Hancock Co., W. Va.—Volunteer Fire Dept. organized here with John Ferguson as chief. Uniforms and other equipment to be purchased.

Three Bridges, Hunterdon Co., N. J.—Plans being discussed for the organization of a Volunteer fire department and the purchase of apparatus.

Albany, N. Y.—The erection of another new fire station on or near Watervliet Ave., is being urged, according to reports.

Catskill, Green Co., N. Y.—An appropriation of $11,800 was voted for the purchase of a new pumper for A. M. Osborn Hose Co. No. 2.

Greensboro, Caroline Co., Md.—A volunteer fire company was organized here with Alvin Smith as chief.

Royal Oak, Oakland Co., Mich.—Seagrave Corp. has contract to furnish a service ladder truck and a 1,000 gal. pumper to the fire department here at cost of $21,750.

Ionia, Mich.—Farmers in vicinity of Lake Odessa planning to purchase a fire engine.

Santa Barbara, Cal.—National Board of Fire Underwriters recommend the construction of a central fire station and drafting of plans for three others as well as the installation of additional fire boxes.

Clearwater, Pinellas Co., Fla.—Contract awarded for the construction of a fire station here.

Knoxville, Marion Co., Ia.—A new piece of apparatus was recently purchased for the fire department.

Lake City, Calhoun Co., Ia.—Funds being raised for the purchase of a piece of fire apparatus.

Townsend, Middlesex Co., Mass.—Town to purchase a pumper and two forest fire outfits for the fire department.

Springfield, Hampden Co., Mass.—New fire station to be erected in East Springfield.

Gary Accepts Magirus Ladder

Following a number of tests in the presence of city officials and members of the fire department, the new Magirus ladder truck delivered to Gary, Ind., was officially accepted.

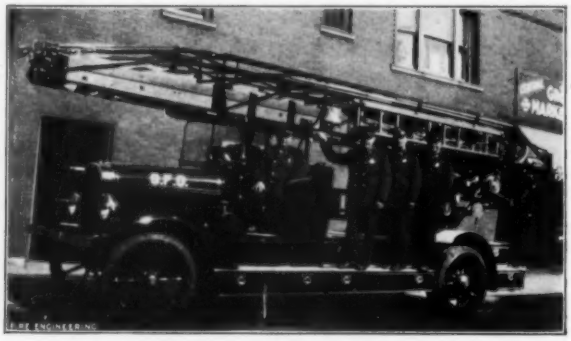
Truck Controlled by One Man

The machine was tested in front of the Hotel Gary and the ladders were extended seventy-seven feet to eighth floor of the hotel. All of the manipulation and control of the ladder was handled by one man.

While the demonstration was in progress, a fire was reported. Chief Frank Parkey was attired in his "Sunday best" in honor of the test, and he immediately rushed from the place of the test to answer the fire call. He dashed into the burning building followed by one of his men with a rubber coat. The chief had just time to remove his coat and put on the rubber one when he was covered by a shower of water, plaster and splinters of wood.

When the alarm was received, the ladders of the Magirus truck were lowered, and the aerial ladder also responded to the alarm.

A number of fire chiefs from that section of the country were in Gary to witness the tests. The truck is equipped with service ladders, tools and other devices.



Magirus Ladder Delivered to Gary, Indiana

Allentown Chief Asked to Resign

William R. Kranzley, chief of the fire department in Allentown, Pa., has been asked to submit his resignation, and it is rumored that others in the department will be affected by the same ruling of the superintendent of public safety.

Chief Kranzley has been head of the department for sixteen years. He has engaged legal counsel and expects to fight the action of the city.

Bridgeton, N. J., Celebrates Anniversary—The fiftieth anniversary of the Bridgeton, N. J., fire department was observed with a parade that was reviewed by Governor Moore. Fifty-seven fire companies from three states formed the longest procession in the history of the town.

Houston, Tex., to Have Drill Tower—Plans have been completed for the erection of a five-story drill tower in Houston, Tex., near the No. 2 Central Fire Station. The tower will have a base fifteen feet square, and it will be built of brick and concrete.

A Nation-Wide Service for Better Protection Against Fire Loss and Water Damage

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The remarkably efficient A. D. T. System of Central Station Night Watch and Fire Alarm Service has played a large part in helping to cut down the fire loss of the country; and the A. D. T. System of Sprinkler Supervisory Service has been instrumental in saving millions of dollars in water damage.

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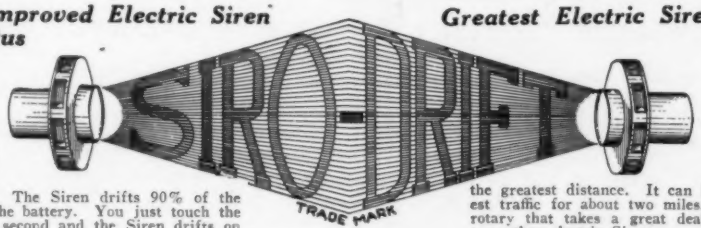

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A Siren that will operate on one-tenth of the battery juice of any other electric Siren of its size. The Siren drifts 90% of the time without the aid of the battery. You just touch the Siren button for one-half second and the Siren drifts on for two or three minutes.

One-half second of current, applied means ten seconds running without any current, with plenty of noise—or two to three minutes at a slower rate of speed.

SIRO-DRIFT

Is 8 inches in diameter and gives the rising and lowering tones that carry the greatest distance. It can be heard through the thickest traffic for about two miles. Has a specially designed rotary that takes a great deal less power to drive than any other electric Siren.

We gladly ship a SIRO-DRIFT SIREN to any city on approval, transportation prepaid. Comes in three brackets —cross bar, on frame in front of radiator and under-the-hood.

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929-931 South Main Street, Los Angeles, Calif.

The "Corey" Fire Hydrant of the improved Rensselaer type is the easiest to operate of any on the market.

Ask for prices and details

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Send me Hydrant Book, No. 9.

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Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

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LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

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Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

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LARKIN Shut-off Nozzles

Over 2000 Fire Departments

have 15,000 Larkin Shut-off Nozzles in service. They have a successful record that is not exceeded by any article used in the fire service. Specify and insist upon them in buying new apparatus.

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High Grade Fire Dept. Supplies of All Kinds

In a HENDERSON Uniform

you always get correct tailoring, dependable quality, reliable workmanship, at the lowest prices consistent with values.

Catalogue illustrating the popular Styles of Firemen's Service Parade Uniforms or for prize contests, as well as Shirts, Belts, Hats, Caps, Badges, Banners, &c., mailed on request.

Write giving Number of Outfits desired and color Cloth preferred.

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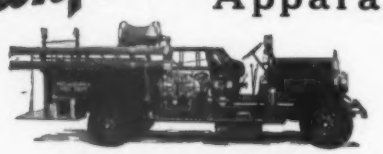
11th & Race Sts., Philadelphia, Pa.

Sanford Fire Apparatus



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Syracuse, N. Y.

Builders of Quality Products for 15 Years

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YOU will be intensely interested in this booklet. It contains a specific message every citizen — especially every city official should read. We have a limited supply of these booklets. If you will send us your name and address, we will be glad to send you a copy.

Forty years of building Powerful High Grade Fire Apparatus. ¶ 6,000 Boyer sealed Cartridge Chemical Tanks in operation and never a failure.

Boyer Fire Apparatus Co.
Logansport Indiana

OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

Community and The Fire Department

By J. A. TRACY
Iowa State Fire Marshal

Co-operation means to work together for a common object. The sagacious fire chief recognizes the value of community co-operation in the work of his department, and strives to gain the good will and support of those whose lives and property he is charged with protecting against fire.

As a rule citizens are prone to criticize public servants, firemen included. An especial effort is therefore necessary to overcome this prejudice and win the support of the community.

When convinced of the merit of the department through its continued good work, the citizens will gladly express their confidence and appreciation by voting bonds or giving any other support needed to carry on the fire fighting and fire prevention work.

The first step in securing co-operation from the community is to create favorable public sentiment toward the fire departments. It was Abraham Lincoln who said:

"In this and like communities, public sentiment is everything With public sentiment, nothing can fail; without it nothing can succeed. Consequently, he who moulds public sentiment goes deeper than he who enacts statutes and pronounces decisions."

I want to quote from Governor Hammill's address at a dinner given for the Iowa Vigilantes by the Iowa Bankers' Association:

"Wherever there is lax law enforcement, the citizens, not the public officials, are at fault. The public is prone to criticise and complain, but few citizens are willing to co-operate. They think they want the laws enforced, but they don't want to help for fear of injuring their business."

Following the advice of President Lincoln and Governor Hammill, you can see how necessary it is for the firemen to show a spirit of fairness and energy in order to create this favorable public sentiment, which can aid so materially in the protection of both life and property.

When a fire breaks out, one over-officious, sarcastic fireman can do more to destroy the good-will of the people toward the fire department than all of the other members can do to build it up. During a fire there is a tendency toward excitement, both among the by-standers and firemen. For this reason care should be exercised in selecting the members of the fire department. The department must follow the Chief's orders carefully. If this be done it will foster a spirit of cordial public approval, and will bring from the community an every-ready willingness to co-operate; a willingness which is so much needed to build up a good fire department.

The fire department having done its part, the community can and will acknowledge with thanks the sacrifices made by the fire boys. The community will be glad to praise and encourage the fire department, knowing that the firemen are self-sacrificing, public-spirited men, willing to help the people of the community when no other power can do them any good.

The Chambers of Commerce and various clubs in each community should join together in a "City Beautiful" campaign, which I believe every one imbued with civic pride will enter into heartily. Among other things this campaign should call for systematic inspections and removal of fire hazards. The inspections can best be made by firemen, the benefit being two-fold: First, it will enable the firemen to get thoroughly familiar with the entrance and exit of both basement and attic; second, it will result in the careful observation of the real fire hazards and cause their removal.

People become used to their own surroundings. They dislike very much to be criticised about the hazards found in their homes or places of business. For this reason it behooves the inspector to point out these hazards in a gentlemanly way and explain the purpose of the inspection. The co-operation of the entire community in the hopes of cutting down the fire losses will, eventually, cut down the insurance rates. As the public sentiment of the entire town is often moulded during these inspection campaigns, it can be seen how necessary it is to sell your work, thus making boosters rather than knockers.

It is the duty of the community to assist in every movement made by the fire department to get adequate equipment so that they may cope with any fire which may start in the community. Without adequate equipment the firemen are handicapped to such an extent that they often become discouraged. A loss in efficiency naturally results. If the department and community act in harmony at all times, co-operation will not be lacking in solving the problems of adequate fire protection.

Tests Conducted on Duration of Fire

A number of very interesting tests have been conducted by the U. S. Bureau of Standards in reference to collecting data on the intensity and duration of fires. The object of these tests was to obtain the temperatures to which it is proper to subject building materials and construction in a fire-test furnace and to serve as a guide in applying the results of these tests to building design.

In the test furnaces walls, partitions, floors. doors, and windows are subjected to a controlled test fire reaching certain intensities at given times after the start of the test, the result being expressed in a time-endurance unit or period which is the length of time the construction withstands the test fire without failure or dangerous weakness. The burning-out tests give information relative to the propriety of the fire intensities employed in the test furnaces and indicate for what building types and occupancies constructions are adequate that have withstood the regular fire tests for given periods..

A test was carried out in the bureau's new test structure, fitted up to simulate a record storage or reference room, an occupancy which is considered as creating the severest fires in office buildings. The combustible contents, consisting of wood shelving, furniture, and records, amounted to about 44 tons for the whole building, which is 30 by 60 feet in inside dimensions, or about 49 lbs. per square foot of floor area. The records were old account records of the Navy Department. The furniture was obsolete and useless materials turned in to the General Supply Committee. . The fire was started in a waste-paper basket in one end and allowed to build up and progress to all parts of the room. The shutters in one end and one side of the building, as also in the roof monitor, were opened gradually to admit the proper amount of air for maximum fire conditions, and were left at the maximum opening attained while the interior cooled down.. The temperatures were measured by means of thermocouples at over 100 points within the building and in the debris, readings being taken every five minutes at each point. These tell the story of the fire, how it progressed through the room and how it built up and died down at the different locations. Considering the building as divided into thirds along its length, in the east third, where the fire started, maximum temperatures of from 1,350 to 1,650° F. were attained in 40 minutes to 1½ hours after the start of the fire. In the middle third temperatures of from 1,580 to 1,780° F. were attained in 1 hour 40 minutes to 2 hours, and in the last third the maximum readings were from 1,700 to 1,770° F., reached in 3½ to 5 hours.

Four burning-out tests have previously been conducted in the small building, 16 by 30 feet in laterial dimensions, that was used in the present test to house the observers taking the temperature readings. In three of the tests it was fitted with desks, files, and other combustible materials weighing about 13 lbs. per square foot of floor area. In two of these tests a woodtop floor was present and in the other a cement-finished floor. In two of the tests the fire was given a quick start by burning a large amount of readily combustible materials in one corner until the temperature all over the room was near the ignition point, this representing conditions where a fire breaks into a room or building from an adjoining burning room or building. In the third test the fire was given a slow start from a fire in a waste-paper basket, as in the present test. A fourth test was also conducted in the smaller building with a record-room occupancy similar to that in the present test, except that the concentration of combustible materials was a little heavier, being 58½ lbs. per square foot of floor area.

Further tests are intended with residential and warehouse occupancies in order to cover the range of conditions encountered in connection with fires in buildings.

Pelham, N. Y., to Have New Fire Station—Contracts have been signed for the construction of a new fire station in Pelham, N. Y.

FALSE ALARMS

THE PROOF

Two firemen were overhauling at a fire. They were both tired and dirty.

A very much worried man approached them, evidently the proprietor of the damaged building, and he gave one of the firemen a cigar.

"A friend of yours?" asked one of the firemen of the other.

"I don't know, I haven't smoked the cigar yet."

SUPER SALESMANSHIP

The earnest disciple of modern salesmanship breezed cheerily into the private office after a victorious struggle with the office boy.

"Good morning, sir," he cried heartedly as he drew from his sample case the latest model of the "No-Flame" extinguisher. "Kindly give me your undivided attention while I give you a practical demonstration of the No-Flame."

"Can't use any today! Good day," he growled as he looked up from his morning mail.

"Now watch me closely," continued the salesman as he struck a dramatic pose and pulled the plunger of the extinguisher.

A yellow liquid shot out and settled in a dirty looking puddle on the morning mail.

The manager leaped quickly aside and the salesman smiled in a pleased way. Lesson No. 1 in his school of salesmanship was to get the attention of the prospect.

"Observe," he went on, "that the liquid will dry, leaving your papers unstained."

The manager reached feverishly for the buzzer on his desk.

"I threw the office boy downstairs," the salesman remarked pleasantly. "Now with your permission we will continue the demonstration. You can not fail to buy after seeing it. I will now set fire to your waste basket."

"Stop!" cried the business man. "How many must I buy to get you out of the office so that I can go back to my work?"—*Life*.

FINALLY RECOGNIZED

Aldermen in Chicago are considering the resolution introduced to purchase as a memorial site, the place where the famed Mrs. O'Leary's cow kicked over the lantern that started the noted fire in 1871.

This brings to mind, a recent incident. An old time reporter who covered the famous fire died recently and stated that the story of the start of the Chicago fire was just a myth created by some imaginative newspaper man.

WANTS TAXI, PULLS BOX

A man about town in Bayonne, N. J., slowly wended his zig zag course from a party. About the time that he reached a corner on which was erected a fire alarm box, he decided that he would make better progress by riding than if he continued walking. He saw the box and felt happy that the city provided such conveniences for pedestrians to call taxi cabs. He broke the glass and pulled the handle.

Instead of a taxi, four engine companies responded—also a policeman. Instead of a taxi, a call was put in for a patrol wagon, and the imbiber spent a night in jail. He was fined twenty-five dollars.

TOO MUCH WASTE

The large crowd at the fire was visible in the reflected light of the burning building. The fire was, so it seemed, beyond control. The noise from the pumpers almost drowned out the hissing sound of the streams as the water reached the seat of the fire. Torrents of water cascaded from the windows to the street below.

In the front row of the long line of spectators was a stout woman who was greatly interested in the firemen. Behind her was a man greatly interested in the water damage.

Forgetting himself for the moment he said, out loud, "Gee, what an awful waste."

At the hospital some hours later he asked why the fat woman had attacked him.

PRAYERS ANSWERED

The following story is told of an incident that happened in Norwich, Conn., a number of years ago.

In the middle of the afternoon of a day on which the town was voting on the selection of a site on which would be constructed a fire station, one of the prominent men of a local church rushed into the office of a leading attorney.

"What can we do?" he gasped. "They are voting on a site for the fire house. We are afraid they will vote for the site close to the church. We don't want it there. The polls close at three o'clock. What can we do?"

The attorney replied leisurely, "You are afraid that they will vote in favor of the site next to the church."

"Yes."

"And the polls close at three o'clock."

Again the reply was in the affirmative.

"And it is 2:30 now. Well there is only one thing for you to do. You go into that closet there, get down on your knees and pray like Hell."

One is at liberty to draw their own conclusion, but the council chose some other site on which to erect the fire station.

ONLY FOR A REST

Whether he was nervous from the shock of falling down the cellar stairs at the fire, or whether he was in the prime of condition was not known to the doctor. All the doctor saw before him was an injured firemen waiting for treatment but at the same time talking as rapidly as he could manipulate his jaws.

"Let me see your tongue," ordered the doctor.

The fireman opened his mouth and showed his tongue, but the doctor went on unconcerned and bandaged the firemen's injured foot.

"But doctor, you asked me to show you my tongue, but you didn't even bother looking at it."

"No. I just wanted to keep you quiet so that I could do my work."

LOOKING AHEAD

The village fire company was holding their annual meeting, and the most important business before the house was the election of a fire chief.

"I nominate Dave Clark for chief," shouted a member at the top of his voice.

But Dave Clark refused to take the nomination, and the members believed that he was the most suitable candidate for the office.

"Whassamatter, Dave? Go on and take it," his friends pleaded.

"Ah, what's the good of being chief?" Dave finally answered. "There ain't no chance for advancement."

HE KNEW ENOUGH

The siren broke up the placid quietness of the village. There was a fire. Instantly the gallant firemen rushed to the fire house. Everybody piled on to the pumper, the driver jumped into his seat, and the apparatus was off. Only the Ford hose car remained, and the one who generally drove the truck in case of fire, was out of town. The only one who remained was a fireman who arrived too late to jump on the pumper. He finally decided to drive the hose truck himself even though he knew little about Fords.

But even a Ford will fail in the time of need. It stalled in a busy part of the highway. A crowd gathered and watched the frantic fireman trying to locate the trouble under the hood. Time is precious in fire-fighting.

He turned to the crowd of interested spectators. "Don't any one know anything about this car."

Some wit in the crowd shouted, "Only a lot of bum jokes."

EXPLAINED

It was a court of inquiry trying to ascertain the reason for a domestic setting fire to the home of her employer.

"Why did you burn your employer's house down?"

"I wanted to see my sweetheart in a hurry, and he being a fireman . . ."

"Is an editor a man who puts things in the magazine?"

"No, you fool, an editor is a man who keeps things out of the magazine."

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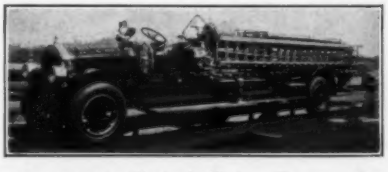

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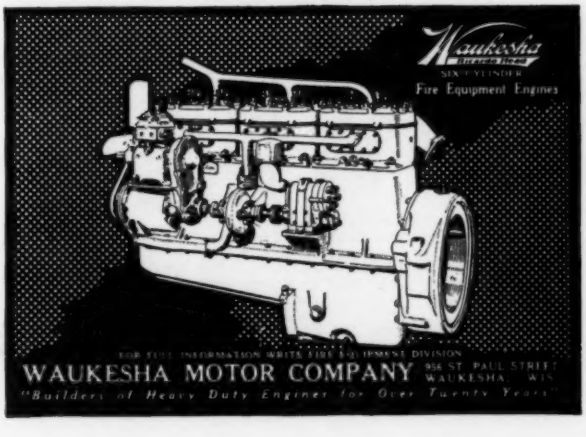

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21 Building Materials, Fire Retardant.
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This page is a feature of every issue to make it convenient for you to get all this information without cost to you and without placing you under any obligation whatever to buy from any particular manufacturer.

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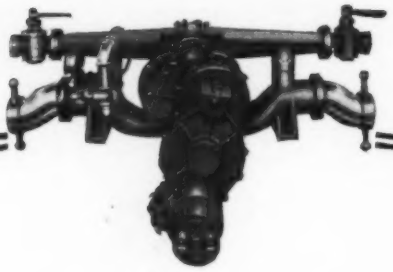

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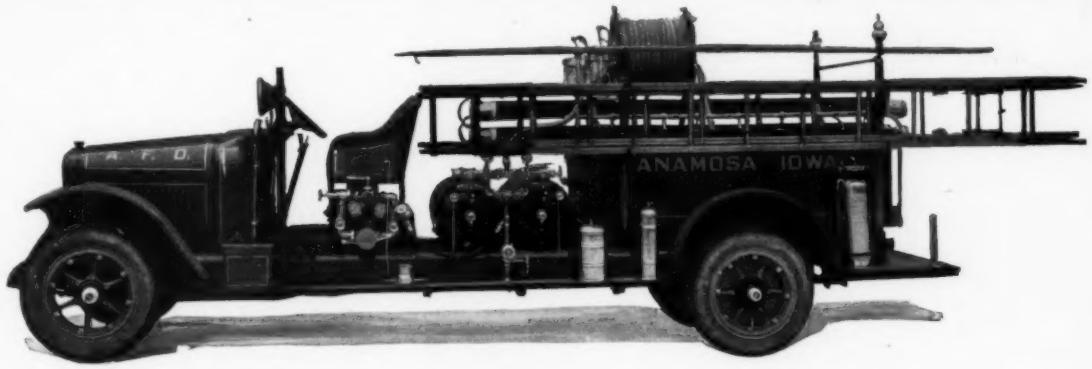

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